

UNCLASSIFIED

**Department of Defense  
Fiscal Year (FY) 2013 President's Budget Submission**

February 2012



**Navy**

*Justification Book Volume 2*

***Research, Development, Test & Evaluation, Navy***

**Budget Activity 4**

UNCLASSIFIED

**UNCLASSIFIED**

**THIS PAGE INTENTIONALLY LEFT BLANK**

**UNCLASSIFIED**

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

**Table of Volumes**

<b>Budget Activities 1, 2, and 3.....</b>	<b>Volume 1</b>
<b>Budget Activity 4.....</b>	<b>Volume 2</b>
<b>Budget Activity 5.....</b>	<b>Volume 3</b>
<b>Budget Activity 6.....</b>	<b>Volume 4</b>
<b>Budget Activity 7.....</b>	<b>Volume 5</b>

**UNCLASSIFIED**

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

**Volume 2 Table of Contents**

**Introduction and Explanation of Contents.....Volume 2 - v**  
**Comptroller Exhibit R-1..... Volume 2 - vii**  
**Program Element Table of Contents (by Budget Activity then Line Item Number).....Volume 2 - xxxiii**  
**Program Element Table of Contents (Alphabetically by Program Element Title).....Volume 2 - xxxvii**  
**Exhibit R-2's..... Volume 2 - 1**

**UNCLASSIFIED**

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

## **Department of Defense Appropriations Act, 2013**

---

### **Research, Development, Test and Evaluation, Navy**

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, \$16,882,877,000, to remain available for obligation until September 30, 2014.

For an additional amount for Research, Development, Test and Evaluation, Navy, \$60,119,000, to remain available until September 30, 2014: Provided, That such amounts in this paragraph are designated by the Congress for Overseas Contingency Operations pursuant to section 251(b)(2)(A) of the Balanced Budget and Emergency Deficit Control Act of 1985, as amended.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Summary Recap of Budget Activities -----	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Basic Research	538,716	605,319		605,319
Applied Research	704,164	822,951		822,951
Advanced Technology Development	769,394	692,105		692,105
Advanced Component Development & Prototypes	3,971,685	4,430,747	1,500	4,432,247
System Development & Demonstration	6,309,828	6,263,080	11,050	6,274,130
RDT&E Management Support	1,179,998	838,757		838,757
Operational Systems Development	4,391,753	4,086,616	41,334	4,127,950
Total Research, Development, Test & Evaluation	17,865,538	17,739,575	53,884	17,793,459
 Summary Recap of FYDP Programs -----				
Strategic Forces	118,511	151,960		151,960
General Purpose Forces	1,426,503	1,419,726	7,550	1,427,276
Intelligence and Communications	1,368,028	1,321,973		1,321,973
Research and Development	13,354,716	13,458,494	12,550	13,471,044
Central Supply and Maintenance	65,553	80,477		80,477
Training Medical and Other	4,104			
Administration and Associated Activities	377			
Classified Programs	1,527,746	1,306,945	33,784	1,340,729
Total Research, Development, Test & Evaluation	17,865,538	17,739,575	53,884	17,793,459

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Summary Recap of Budget Activities -----	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Basic Research	605,021		605,021
Applied Research	790,302		790,302
Advanced Technology Development	584,402		584,402
Advanced Component Development & Prototypes	4,335,297	4,600	4,339,897
System Development & Demonstration	5,747,232	2,173	5,749,405
RDT&E Management Support	845,077	5,200	850,277
Operational Systems Development	3,975,546	48,146	4,023,692
Total Research, Development, Test & Evaluation	16,882,877	60,119	16,942,996
Summary Recap of FYDP Programs -----			
Strategic Forces	161,263		161,263
General Purpose Forces	1,422,932	6,762	1,429,694
Intelligence and Communications	1,176,330	7,600	1,183,930
Research and Development	12,883,923	11,973	12,895,896
Central Supply and Maintenance	87,270		87,270
Training Medical and Other			
Administration and Associated Activities			
Classified Programs	1,151,159	33,784	1,184,943
Total Research, Development, Test & Evaluation	16,882,877	60,119	16,942,996

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - viii

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Se c
1	0601103N	University Research Initiatives	01	104,088	133,157		133,157	U
2	0601152N	In-House Laboratory Independent Research	01	18,011	18,092		18,092	U
3	0601153N	Defense Research Sciences	01	416,617	454,070		454,070	U
		Basic Research		538,716	605,319		605,319	
4	0602114N	Power Projection Applied Research	02	100,159	104,796		104,796	U
5	0602123N	Force Protection Applied Research	02	143,063	196,734		196,734	U
6	0602131M	Marine Corps Landing Force Technology	02	42,131	44,745		44,745	U
7	0602235N	Common Picture Applied Research	02	68,155	65,184		65,184	U
8	0602236N	Warfighter Sustainment Applied Research	02	109,716	101,072		101,072	U
9	0602271N	Electromagnetic Systems Applied Research	02	86,966	108,185		108,185	U
10	0602435N	Ocean Warfighting Environment Applied Research	02	47,231	50,076		50,076	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	5,762	5,937		5,937	U
12	0602747N	Undersea Warfare Applied Research	02	66,056	108,639		108,639	U
13	0602750N	Future Naval Capabilities Applied Research	02					U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	34,925	37,583		37,583	U
		Applied Research		704,164	822,951		822,951	
15	0603114N	Power Projection Advanced Technology	03	125,673	114,270		114,270	U
16	0603123N	Force Protection Advanced Technology	03	63,732	45,020		45,020	U
17	0603235N	Common Picture Advanced Technology	03	91,526	48,985		48,985	U
18	0603236N	Warfighter Sustainment Advanced Technology	03	95,045	71,149		71,149	U
19	0603271N	Electromagnetic Systems Advanced Technology	03	94,558	122,458		122,458	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
1	0601103N	University Research Initiatives	01	113,690		113,690	U
2	0601152N	In-House Laboratory Independent Research	01	18,261		18,261	U
3	0601153N	Defense Research Sciences	01	473,070		473,070	U
		Basic Research		605,021		605,021	
4	0602114N	Power Projection Applied Research	02	89,189		89,189	U
5	0602123N	Force Protection Applied Research	02	143,301		143,301	U
6	0602131M	Marine Corps Landing Force Technology	02	46,528		46,528	U
7	0602235N	Common Picture Applied Research	02	41,696		41,696	U
8	0602236N	Warfighter Sustainment Applied Research	02	44,127		44,127	U
9	0602271N	Electromagnetic Systems Applied Research	02	78,228		78,228	U
10	0602435N	Ocean Warfighting Environment Applied Research	02	49,635		49,635	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	5,973		5,973	U
12	0602747N	Undersea Warfare Applied Research	02	96,814		96,814	U
13	0602750N	Future Naval Capabilities Applied Research	02	162,417		162,417	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	32,394		32,394	U
		Applied Research		790,302		790,302	
15	0603114N	Power Projection Advanced Technology	03	56,543		56,543	U
16	0603123N	Force Protection Advanced Technology	03	18,616		18,616	U
17	0603235N	Common Picture Advanced Technology	03				U
18	0603236N	Warfighter Sustainment Advanced Technology	03				U
19	0603271N	Electromagnetic Systems Advanced Technology	03	54,858		54,858	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Se c
20	0603640M	USMC Advanced Technology Demonstration (ATD)	03	110,068	124,115		124,115	U
21	0603651M	Joint Non-Lethal Weapons Technology Development	03	10,832	11,286		11,286	U
22	0603673N	Future Naval Capabilities Advanced Technology Development	03					U
23	0603729N	Warfighter Protection Advanced Technology	03	54,356	56,819		56,819	U
24	0603747N	Undersea Warfare Advanced Technology	03	51,283	41,959		41,959	U
25	0603758N	Navy Warfighting Experiments and Demonstrations	03	51,115	49,996		49,996	U
26	0603782N	Mine and Expeditionary Warfare Advanced Technology	03	21,206	6,048		6,048	U
		Advanced Technology Development		769,394	692,105		692,105	
27	0603128N	Unmanned Aerial System	04	36,000				U
28	0603207N	Air/Ocean Tactical Applications	04	115,072	84,962		84,962	U
29	0603216N	Aviation Survivability	04	9,151	10,893		10,893	U
30	0603237N	Deployable Joint Command and Control	04	3,997	3,702		3,702	U
31	0603251N	Aircraft Systems	04		10,497		10,497	U
32	0603254N	ASW Systems Development	04	7,969	7,896		7,896	U
33	0603261N	Tactical Airborne Reconnaissance	04	6,755	5,944		5,944	U
34	0603382N	Advanced Combat Systems Technology	04	1,613	1,418		1,418	U
35	0603502N	Surface and Shallow Water Mine Countermeasures	04	94,539	127,757		127,757	U
36	0603506N	Surface Ship Torpedo Defense	04	49,625	118,764		118,764	U
37	0603512N	Carrier Systems Development	04	99,704	54,072		54,072	U
38	0603513N	Shipboard System Component Development	04	51				U
39	0603525N	PILOT FISH	04	79,699	95,605		95,605	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
20	0603640M	USMC Advanced Technology Demonstration (ATD)	03	130,598		130,598	U
21	0603651M	Joint Non-Lethal Weapons Technology Development	03	11,706		11,706	U
22	0603673N	Future Naval Capabilities Advanced Technology Development	03	256,382		256,382	U
23	0603729N	Warfighter Protection Advanced Technology	03	3,880		3,880	U
24	0603747N	Undersea Warfare Advanced Technology	03				U
25	0603758N	Navy Warfighting Experiments and Demonstrations	03	51,819		51,819	U
26	0603782N	Mine and Expeditionary Warfare Advanced Technology	03				U
		Advanced Technology Development		584,402		584,402	
27	0603128N	Unmanned Aerial System	04				U
28	0603207N	Air/Ocean Tactical Applications	04	34,085		34,085	U
29	0603216N	Aviation Survivability	04	8,783		8,783	U
30	0603237N	Deployable Joint Command and Control	04	3,773		3,773	U
31	0603251N	Aircraft Systems	04	24,512		24,512	U
32	0603254N	ASW Systems Development	04	8,090		8,090	U
33	0603261N	Tactical Airborne Reconnaissance	04	5,301		5,301	U
34	0603382N	Advanced Combat Systems Technology	04	1,506		1,506	U
35	0603502N	Surface and Shallow Water Mine Countermeasures	04	190,622		190,622	U
36	0603506N	Surface Ship Torpedo Defense	04	93,346		93,346	U
37	0603512N	Carrier Systems Development	04	108,871		108,871	U
38	0603513N	Shipboard System Component Development	04				U
39	0603525N	PILOT FISH	04	101,169		101,169	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Se c
40	0603527N	RETRACT LARCH	04	159,117	73,421		73,421	U
41	0603536N	RETRACT JUNIPER	04	127,544	130,153		130,153	U
42	0603542N	Radiological Control	04	1,292	1,338		1,338	U
43	0603553N	Surface ASW	04	44,172	29,787		29,787	U
44	0603561N	Advanced Submarine System Development	04	549,702	861,366		861,366	U
45	0603562N	Submarine Tactical Warfare Systems	04	5,520	9,233		9,233	U
46	0603563N	Ship Concept Advanced Design	04	17,835	14,308		14,308	U
47	0603564N	Ship Preliminary Design & Feasibility Studies	04	10,087	22,210		22,210	U
48	0603570N	Advanced Nuclear Power Systems	04	364,644	463,683		463,683	U
49	0603573N	Advanced Surface Machinery Systems	04	5,295	18,239		18,239	U
50	0603576N	CHALK EAGLE	04	447,620	582,025		582,025	U
51	0603581N	Littoral Combat Ship (LCS)	04	191,613	292,665		292,665	U
52	0603582N	Combat System Integration	04	33,323	34,123		34,123	U
53	0603609N	Conventional Munitions	04	5,333	4,753		4,753	U
54	0603611M	Marine Corps Assault Vehicles	04	214,597	37,000		37,000	U
55	0603635M	Marine Corps Ground Combat/Support System	04	26,899	54,877		54,877	U
56	0603654N	Joint Service Explosive Ordnance Development	04	31,354	33,654	1,500	35,154	U
57	0603658N	Cooperative Engagement	04	57,198	54,783		54,783	U
58	0603713N	Ocean Engineering Technology Development	04	12,715	9,996		9,996	U
59	0603721N	Environmental Protection	04	19,473	21,714		21,714	U
60	0603724N	Navy Energy Program	04	33,124	70,538		70,538	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
---	-----	----	---	-----	-----	-----	c
40	0603527N	RETRACT LARCH	04	74,312		74,312	U
41	0603536N	RETRACT JUNIPER	04	90,730		90,730	U
42	0603542N	Radiological Control	04	777		777	U
43	0603553N	Surface ASW	04	6,704		6,704	U
44	0603561N	Advanced Submarine System Development	04	555,123		555,123	U
45	0603562N	Submarine Tactical Warfare Systems	04	9,368		9,368	U
46	0603563N	Ship Concept Advanced Design	04	24,609		24,609	U
47	0603564N	Ship Preliminary Design & Feasibility Studies	04	13,710		13,710	U
48	0603570N	Advanced Nuclear Power Systems	04	249,748		249,748	U
49	0603573N	Advanced Surface Machinery Systems	04	29,897		29,897	U
50	0603576N	CHALK EAGLE	04	509,988		509,988	U
51	0603581N	Littoral Combat Ship (LCS)	04	429,420		429,420	U
52	0603582N	Combat System Integration	04	56,551		56,551	U
53	0603609N	Conventional Munitions	04	7,342		7,342	U
54	0603611M	Marine Corps Assault Vehicles	04	95,182		95,182	U
55	0603635M	Marine Corps Ground Combat/Support System	04	10,496		10,496	U
56	0603654N	Joint Service Explosive Ordnance Development	04	52,331	4,600	56,931	U
57	0603658N	Cooperative Engagement	04	56,512		56,512	U
58	0603713N	Ocean Engineering Technology Development	04	7,029		7,029	U
59	0603721N	Environmental Protection	04	21,080		21,080	U
60	0603724N	Navy Energy Program	04	55,324		55,324	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED



## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	S e c
---	-----	----	---	-----	-----	-----	-----	-
61	0603725N	Facilities Improvement	04	3,727	3,754		3,754	U
62	0603734N	CHALK CORAL	04	70,284	79,415		79,415	U
63	0603739N	Navy Logistic Productivity	04	4,009	4,137		4,137	U
64	0603746N	RETRACT MAPLE	04	221,725	276,171		276,171	U
65	0603748N	LINK PLUMERIA	04	59,443	52,588		52,588	U
66	0603751N	RETRACT ELM	04	163,393	150,584		150,584	U
67	0603755N	Ship Self Defense - Dem/Val	04	3,422				U
68	0603764N	LINK EVERGREEN	04	48,618	144,985		144,985	U
69	0603787N	Special Processes	04	35,802	43,365		43,365	U
70	0603790N	NATO Research and Development	04	8,888	9,140		9,140	U
71	0603795N	Land Attack Technology	04	899	421		421	U
72	0603851M	Joint Non-Lethal Weapons Testing	04	42,464	40,992		40,992	U
73	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	155,538	118,255		118,255	U
74	0603889N	Counterdrug RDT&E Projects	04	8,700				U
75	0603925N	Directed Energy and Electric Weapon Systems	04	7,959				U
76	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	50,166	64,097		64,097	U
77	0604279N	ASE Self-Protection Optimization	04	7,000	697		697	U
78	0604653N	Joint Counter Radio Controlled IED Electronic Warfare (JCREW)	04	68,421	62,044		62,044	U
79	0604659N	Precision Strike Weapons Development Program	04	5,322	3,450		3,450	U
80	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	31,785	33,573		33,573	U
81	0604775N	Defense Rapid Innovation Program	04	104,466				U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - xv

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
---	-----	----	---	-----	-----	-----	c
61	0603725N	Facilities Improvement	04	3,401		3,401	U
62	0603734N	CHALK CORAL	04	45,966		45,966	U
63	0603739N	Navy Logistic Productivity	04	3,811		3,811	U
64	0603746N	RETRACT MAPLE	04	341,305		341,305	U
65	0603748N	LINK PLUMERIA	04	181,220		181,220	U
66	0603751N	RETRACT ELM	04	174,014		174,014	U
67	0603755N	Ship Self Defense - Dem/Val	04				U
68	0603764N	LINK EVERGREEN	04	68,654		68,654	U
69	0603787N	Special Processes	04	44,487		44,487	U
70	0603790N	NATO Research and Development	04	9,389		9,389	U
71	0603795N	Land Attack Technology	04	16,132		16,132	U
72	0603851M	Joint Non-Lethal Weapons Testing	04	44,994		44,994	U
73	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	137,369		137,369	U
74	0603889N	Counterdrug RDT&E Projects	04				U
75	0603925N	Directed Energy and Electric Weapon Systems	04				U
76	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	73,934		73,934	U
77	0604279N	ASE Self-Protection Optimization	04	711		711	U
78	0604653N	Joint Counter Radio Controlled IED Electronic Warfare (JCREW)	04	71,300		71,300	U
79	0604659N	Precision Strike Weapons Development Program	04	5,654		5,654	U
80	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	31,549		31,549	U
81	0604775N	Defense Rapid Innovation Program	04				U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	S e c
82	0604786N	Offensive Anti-Surface Warfare Weapon Development	04					U
83	0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04					U
84	0303354N	ASW Systems Development - MIP	04	2,150	1,078		1,078	U
85	0303562N	Submarine Tactical Warfare Systems - MIP	04	4,231				U
86	0304270N	Electronic Warfare Development - MIP	04	641	625		625	U
	Advanced Component Development & Prototypes			3,971,685	4,430,747	1,500	4,432,247	
87	0604212N	Other Helo Development	05	51,825	42,651		42,651	U
88	0604214N	AV-8B Aircraft - Eng Dev	05	22,063	30,676		30,676	U
89	0604215N	Standards Development	05	41,991	49,439		49,439	U
90	0604216N	Multi-Mission Helicopter Upgrade Development	05	54,404	17,654		17,654	U
91	0604218N	Air/Ocean Equipment Engineering	05	5,496	5,922		5,922	U
92	0604221N	P-3 Modernization Program	05	3,517	3,417		3,417	U
93	0604230N	Warfare Support System	05	3,685	9,944		9,944	U
94	0604231N	Tactical Command System	05	87,273	77,245		77,245	U
95	0604234N	Advanced Hawkeye	05	168,157	130,994		130,994	U
96	0604245N	H-1 Upgrades	05	58,638	67,569		67,569	U
97	0604261N	Acoustic Search Sensors	05	63,041	48,838		48,838	U
98	0604262N	V-22A	05	42,686	84,477		84,477	U
99	0604264N	Air Crew Systems Development	05	5,914	3,249		3,249	U
100	0604269N	EA-18	05	20,246	17,100		17,100	U
101	0604270N	Electronic Warfare Development	05	78,147	89,418	5,600	95,018	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
82	0604786N	Offensive Anti-Surface Warfare Weapon Development	04	86,801		86,801	U
83	0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04	44,500		44,500	U
84	0303354N	ASW Systems Development - MIP	04	13,172		13,172	U
85	0303562N	Submarine Tactical Warfare Systems - MIP	04				U
86	0304270N	Electronic Warfare Development - MIP	04	643		643	U
		Advanced Component Development & Prototypes		4,335,297	4,600	4,339,897	
87	0604212N	Other Helo Development	05	33,978		33,978	U
88	0604214N	AV-8B Aircraft - Eng Dev	05	32,789		32,789	U
89	0604215N	Standards Development	05	84,988		84,988	U
90	0604216N	Multi-Mission Helicopter Upgrade Development	05	6,866		6,866	U
91	0604218N	Air/Ocean Equipment Engineering	05	4,060		4,060	U
92	0604221N	P-3 Modernization Program	05	3,451		3,451	U
93	0604230N	Warfare Support System	05	13,071		13,071	U
94	0604231N	Tactical Command System	05	71,645		71,645	U
95	0604234N	Advanced Hawkeye	05	119,065		119,065	U
96	0604245N	H-1 Upgrades	05	31,105		31,105	U
97	0604261N	Acoustic Search Sensors	05	34,299		34,299	U
98	0604262N	V-22A	05	54,412		54,412	U
99	0604264N	Air Crew Systems Development	05	2,717		2,717	U
100	0604269N	EA-18	05	13,009		13,009	U
101	0604270N	Electronic Warfare Development	05	51,304		51,304	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - xviii

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Se
102	0604273N	VH-71A Executive Helo Development	05	147,268	60,751		60,751	U
103	0604274N	Next Generation Jammer (NGJ)	05	83,948	170,910		170,910	U
104	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	609,159	675,521		675,521	U
105	0604307N	Surface Combatant Combat System Engineering	05	195,569	223,217		223,217	U
106	0604311N	LPD-17 Class Systems Integration	05	1,636	884		884	U
107	0604329N	Small Diameter Bomb (SDB)	05	15,732	29,635		29,635	U
108	0604366N	Standard Missile Improvements	05	93,410	46,705		46,705	U
109	0604373N	Airborne MCM	05	42,519	41,142		41,142	U
110	0604376M	Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) for Aviation	05					U
111	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	29,569	24,898		24,898	U
112	0604404N	Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System	05		75,700		75,700	U
113	0604501N	Advanced Above Water Sensors	05	254,778	247,071		247,071	U
114	0604503N	SSN-688 and Trident Modernization	05	100,717	90,180		90,180	U
115	0604504N	Air Control	05	5,511	5,521		5,521	U
116	0604512N	Shipboard Aviation Systems	05	68,438	45,445		45,445	U
117	0604518N	Combat Information Center Conversion	05	4,915	3,400		3,400	U
118	0604558N	New Design SSN	05	166,888	112,158		112,158	U
119	0604562N	Submarine Tactical Warfare System	05	48,269	48,466		48,466	U
120	0604567N	Ship Contract Design/ Live Fire T&E	05	157,828	121,089		121,089	U
121	0604574N	Navy Tactical Computer Resources	05	4,420	3,848		3,848	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
---	-----	----	---	-----	-----	-----	c
102	0604273N	VH-71A Executive Helo Development	05	61,163		61,163	U
103	0604274N	Next Generation Jammer (NGJ)	05	187,024		187,024	U
104	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	337,480		337,480	U
105	0604307N	Surface Combatant Combat System Engineering	05	260,616		260,616	U
106	0604311N	LPD-17 Class Systems Integration	05	824		824	U
107	0604329N	Small Diameter Bomb (SDB)	05	31,064		31,064	U
108	0604366N	Standard Missile Improvements	05	63,891		63,891	U
109	0604373N	Airborne MCM	05	73,246		73,246	U
110	0604376M	Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) for Aviation	05	10,568		10,568	U
111	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	39,974		39,974	U
112	0604404N	Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System	05	122,481		122,481	U
113	0604501N	Advanced Above Water Sensors	05	255,516		255,516	U
114	0604503N	SSN-688 and Trident Modernization	05	82,620		82,620	U
115	0604504N	Air Control	05	5,633		5,633	U
116	0604512N	Shipboard Aviation Systems	05	55,826		55,826	U
117	0604518N	Combat Information Center Conversion	05	918		918	U
118	0604558N	New Design SSN	05	165,230		165,230	U
119	0604562N	Submarine Tactical Warfare System	05	49,141		49,141	U
120	0604567N	Ship Contract Design/ Live Fire T&E	05	196,737		196,737	U
121	0604574N	Navy Tactical Computer Resources	05	3,889		3,889	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - xx

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	S e c
---	-----	----	---	-----	-----	-----	-----	-
122	0604601N	Mine Development	05	4,399	3,933		3,933	U
123	0604610N	Lightweight Torpedo Development	05	25,852	32,592		32,592	U
124	0604654N	Joint Service Explosive Ordnance Development	05	10,418	9,960	3,500	13,460	U
125	0604703N	Personnel, Training, Simulation, and Human Factors	05	10,098	12,992		12,992	U
126	0604727N	Joint Standoff Weapon Systems	05	12,503	7,506		7,506	U
127	0604755N	Ship Self Defense (Detect & Control)	05	48,526	71,222		71,222	U
128	0604756N	Ship Self Defense (Engage: Hard Kill)	05	35,284	6,631		6,631	U
129	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	90,484	184,087		184,087	U
130	0604761N	Intelligence Engineering	05	15,831	2,196		2,196	U
131	0604771N	Medical Development	05	28,407	31,084	1,950	33,034	U
132	0604777N	Navigation/ID System	05	58,727	39,331		39,331	U
133	0604800M	Joint Strike Fighter (JSF) - EMD	05	602,142	651,786		651,786	U
134	0604800N	Joint Strike Fighter (JSF) - EMD	05	654,198	658,549		658,549	U
135	0605013M	Information Technology Development	05	22,048	19,461		19,461	U
136	0605013N	Information Technology Development	05	27,976	29,760		29,760	U
137	0605018N	Navy Integrated Military Human Resources System (N-IMHRS)	05	14,965	55,017		55,017	U
138	0605212N	CH-53K RDTE	05	558,152	624,461		624,461	U
139	0605450N	Joint Air-to-Ground Missile (JAGM)	05	80,911	108,395		108,395	U
140	0605500N	Multi-Mission Maritime Aircraft (MMA)	05	907,465	618,684		618,684	U
141	0204202N	DDG-1000	05	348,763	257,580		257,580	U
142	0304231N	Tactical Command System - MIP	05	1,311	979		979	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - xxi

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
122	0604601N	Mine Development	05	8,335		8,335	U
123	0604610N	Lightweight Torpedo Development	05	49,818		49,818	U
124	0604654N	Joint Service Explosive Ordnance Development	05	10,099		10,099	U
125	0604703N	Personnel, Training, Simulation, and Human Factors	05	7,348		7,348	U
126	0604727N	Joint Standoff Weapon Systems	05	5,518		5,518	U
127	0604755N	Ship Self Defense (Detect & Control)	05	87,662		87,662	U
128	0604756N	Ship Self Defense (Engage: Hard Kill)	05	64,079		64,079	U
129	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	151,489		151,489	U
130	0604761N	Intelligence Engineering	05				U
131	0604771N	Medical Development	05	12,707	2,173	14,880	U
132	0604777N	Navigation/ID System	05	47,764		47,764	U
133	0604800M	Joint Strike Fighter (JSF) - EMD	05	737,149		737,149	U
134	0604800N	Joint Strike Fighter (JSF) - EMD	05	743,926		743,926	U
135	0605013M	Information Technology Development	05	12,143		12,143	U
136	0605013N	Information Technology Development	05	72,209		72,209	U
137	0605018N	Navy Integrated Military Human Resources System (N-IMHRS)	05				U
138	0605212N	CH-53K RDTE	05	606,204		606,204	U
139	0605450N	Joint Air-to-Ground Missile (JAGM)	05				U
140	0605500N	Multi-Mission Maritime Aircraft (MMA)	05	421,102		421,102	U
141	0204202N	DDG-1000	05	124,655		124,655	U
142	0304231N	Tactical Command System - MIP	05	1,170		1,170	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58



UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	S e c
143	0304503N	SSN-688 and Trident Modernization - MIP	05	1,408				U
144	0304785N	Tactical Cryptologic Systems	05	12,303	31,740		31,740	U
145	0305124N	Special Applications Program	05		100,000		100,000	U
		System Development & Demonstration		6,309,828	6,263,080	11,050	6,274,130	
146	0604256N	Threat Simulator Development	06	18,353	28,318		28,318	U
147	0604258N	Target Systems Development	06	68,293	44,700		44,700	U
148	0604759N	Major T&E Investment	06	37,331	37,957		37,957	U
149	0605126N	Joint Theater Air and Missile Defense Organization	06		2,970		2,970	U
150	0605152N	Studies and Analysis Support - Navy	06	9,451	17,435		17,435	U
151	0605154N	Center for Naval Analyses	06	45,582	42,751		42,751	U
152	0605502N	Small Business Innovative Research	06	320,547	10		10	U
153	0605804N	Technical Information Services	06	1,147	571		571	U
154	0605853N	Management, Technical & International Support	06	58,588	58,162		58,162	U
155	0605856N	Strategic Technical Support	06	3,335	3,277		3,277	U
156	0605861N	RDT&E Science and Technology Management	06	72,161	73,917		73,917	U
157	0605863N	RDT&E Ship and Aircraft Support	06	100,759	136,531		136,531	U
158	0605864N	Test and Evaluation Support	06	376,563	335,357		335,357	U
159	0605865N	Operational Test and Evaluation Capability	06	15,592	16,634		16,634	U
160	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	9,140	4,223		4,223	U
161	0605867N	SEW Surveillance/Reconnaissance Support	06	19,600	7,642		7,642	U
162	0605873M	Marine Corps Program Wide Support	06	17,225	25,538		25,538	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line	Program Element No Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	S e c
--	-----	----	---	-----	-----	-----	-
143	0304503N	SSN-688 and Trident Modernization - MIP	05				U
144	0304785N	Tactical Cryptologic Systems	05	23,255		23,255	U
145	0305124N	Special Applications Program	05				U
		System Development & Demonstration		5,747,232	2,173	5,749,405	
146	0604256N	Threat Simulator Development	06	30,790		30,790	U
147	0604258N	Target Systems Development	06	59,221		59,221	U
148	0604759N	Major T&E Investment	06	35,894		35,894	U
149	0605126N	Joint Theater Air and Missile Defense Organization	06	7,573		7,573	U
150	0605152N	Studies and Analysis Support - Navy	06	20,963		20,963	U
151	0605154N	Center for Naval Analyses	06	46,856		46,856	U
152	0605502N	Small Business Innovative Research	06				U
153	0605804N	Technical Information Services	06	796		796	U
154	0605853N	Management, Technical & International Support	06	32,782		32,782	U
155	0605856N	Strategic Technical Support	06	3,306		3,306	U
156	0605861N	RDT&E Science and Technology Management	06	70,302		70,302	U
157	0605863N	RDT&E Ship and Aircraft Support	06	144,033		144,033	U
158	0605864N	Test and Evaluation Support	06	342,298		342,298	U
159	0605865N	Operational Test and Evaluation Capability	06	16,399		16,399	U
160	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	4,579	5,200	9,779	U
161	0605867N	SEW Surveillance/Reconnaissance Support	06	8,000		8,000	U
162	0605873M	Marine Corps Program Wide Support	06	18,490		18,490	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - xxiv

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	S e c
163	0305885N	Tactical Cryptologic Activities	06	1,850	2,764		2,764	U
164	0804758N	Service Support to JFCOM, JNTC	06	4,104				U
165	0909999N	Financing for Cancelled Account Adjustments	06	377				U
	RDT&E	Management Support		1,179,998	838,757		838,757	
167	0604402N	Unmanned Combat Air Vehicle (UCAV) Advanced Component and Prototype Development	07	258,069	198,251		198,251	U
168	0604717M	Marine Corps Combat Services Support	07		400		400	U
169	0604766M	Marine Corps Data Systems	07		1,650		1,650	U
170	0101221N	Strategic Sub & Weapons System Support	07	68,575	88,873		88,873	U
171	0101224N	SSBN Security Technology Program	07	33,824	33,519		33,519	U
172	0101226N	Submarine Acoustic Warfare Development	07	6,620	6,360		6,360	U
173	0101402N	Navy Strategic Communications	07	9,492	23,208		23,208	U
174	0203761N	Rapid Technology Transition (RTT)	07	33,948	30,005		30,005	U
175	0204136N	F/A-18 Squadrons	07	143,560	145,091	2,000	147,091	U
176	0204152N	E-2 Squadrons	07	20,774	6,687		6,687	U
177	0204163N	Fleet Telecommunications (Tactical)	07	27,321	1,739		1,739	U
178	0204228N	Surface Support	07		3,377		3,377	U
179	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	10,352	8,819		8,819	U
180	0204311N	Integrated Surveillance System	07	28,161	21,259		21,259	U
181	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	4,315	5,214		5,214	U
182	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07					U
183	0204571N	Consolidated Training Systems Development	07	39,792	42,244		42,244	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
163	0305885N	Tactical Cryptologic Activities	06	2,795		2,795	U
164	0804758N	Service Support to JFCOM, JNTC	06				U
165	0909999N	Financing for Cancelled Account Adjustments	06				U
	RDT&E	Management Support		845,077	5,200	850,277	
167	0604402N	Unmanned Combat Air Vehicle (UCAV) Advanced Component and Prototype Development	07	142,282		142,282	U
168	0604717M	Marine Corps Combat Services Support	07				U
169	0604766M	Marine Corps Data Systems	07				U
170	0101221N	Strategic Sub & Weapons System Support	07	105,892		105,892	U
171	0101224N	SSBN Security Technology Program	07	34,729		34,729	U
172	0101226N	Submarine Acoustic Warfare Development	07	1,434		1,434	U
173	0101402N	Navy Strategic Communications	07	19,208		19,208	U
174	0203761N	Rapid Technology Transition (RTT)	07	25,566		25,566	U
175	0204136N	F/A-18 Squadrons	07	188,299		188,299	U
176	0204152N	E-2 Squadrons	07	8,610		8,610	U
177	0204163N	Fleet Telecommunications (Tactical)	07	15,695		15,695	U
178	0204228N	Surface Support	07	4,171		4,171	U
179	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	11,265		11,265	U
180	0204311N	Integrated Surveillance System	07	45,922		45,922	U
181	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	8,435		8,435	U
182	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07	75,088		75,088	U
183	0204571N	Consolidated Training Systems Development	07	20,229		20,229	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	S e c
--	-----	----	---	-----	-----	-----	-----	-
184	0204574N	Cryptologic Direct Support	07	1,511	1,447		1,447	U
185	0204575N	Electronic Warfare (EW) Readiness Support	07	47,973	18,142		18,142	U
186	0205601N	HARM Improvement	07	73,189	11,147		11,147	U
187	0205604N	Tactical Data Links	07	28,241	69,189		69,189	U
188	0205620N	Surface ASW Combat System Integration	07	29,983	29,472		29,472	U
189	0205632N	MK-48 ADCAP	07	33,912	46,759		46,759	U
190	0205633N	Aviation Improvements	07	90,987	100,415		100,415	U
191	0205658N	Navy Science Assistance Program	07	3,503	1,957		1,957	U
192	0205675N	Operational Nuclear Power Systems	07	73,851	82,705		82,705	U
193	0206313M	Marine Corps Communications Systems	07	227,604	320,123	1,500	321,623	U
194	0206623M	Marine Corps Ground Combat/Supporting Arms Systems	07	77,623	159,396		159,396	U
195	0206624M	Marine Corps Combat Services Support	07	52,480	27,072		27,072	U
196	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	21,658	14,101	4,050	18,151	U
197	0207161N	Tactical AIM Missiles	07	906	8,765		8,765	U
198	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	2,588	2,913		2,913	U
199	0208058N	Joint High Speed Vessel (JHSV)	07	3,508	4,108		4,108	U
204	0303109N	Satellite Communications (SPACE)	07	410,015	263,439		263,439	U
205	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	42,417	24,855		24,855	U
206	0303140N	Information Systems Security Program	07	24,988	37,196		37,196	U
207	0303150M	WWMCCS/Global Command and Control System	07		1,250		1,250	U
208	0303238N	Consolidated Afloat Network Enterprise Services (CANES) - MIP	07	9,334	6,602		6,602	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
---	-----	----	---	-----	-----	-----	c
184	0204574N	Cryptologic Direct Support	07	1,756		1,756	U
185	0204575N	Electronic Warfare (EW) Readiness Support	07	19,843		19,843	U
186	0205601N	HARM Improvement	07	11,477		11,477	U
187	0205604N	Tactical Data Links	07	118,818		118,818	U
188	0205620N	Surface ASW Combat System Integration	07	27,342		27,342	U
189	0205632N	MK-48 ADCAP	07	28,717		28,717	U
190	0205633N	Aviation Improvements	07	89,157		89,157	U
191	0205658N	Navy Science Assistance Program	07	3,450		3,450	U
192	0205675N	Operational Nuclear Power Systems	07	86,435		86,435	U
193	0206313M	Marine Corps Communications Systems	07	219,054		219,054	U
194	0206623M	Marine Corps Ground Combat/Supporting Arms Systems	07	181,693		181,693	U
195	0206624M	Marine Corps Combat Services Support	07	58,393	6,762	65,155	U
196	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	22,966		22,966	U
197	0207161N	Tactical AIM Missiles	07	21,107		21,107	U
198	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	2,857		2,857	U
199	0208058N	Joint High Speed Vessel (JHSV)	07	1,932		1,932	U
204	0303109N	Satellite Communications (SPACE)	07	188,482		188,482	U
205	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	16,749		16,749	U
206	0303140N	Information Systems Security Program	07	26,307		26,307	U
207	0303150M	WWMCCS/Global Command and Control System	07	500		500	U
208	0303238N	Consolidated Afloat Network Enterprise Services (CANES) - MIP	07				U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line No	Program Element Number	Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	S e c
---	-----	----	---	-----	-----	-----	-----	-
210	0305149N	COBRA JUDY	07	36,278	40,605		40,605	U
211	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	07	38,795	904		904	U
212	0305192N	Military Intelligence Program (MIP) Activities	07	4,412	4,099		4,099	U
213	0305204N	Tactical Unmanned Aerial Vehicles	07	20,480	9,353		9,353	U
214	0305206N	Airborne Reconnaissance Systems	07	49,945	20,000		20,000	U
215	0305207N	Manned Reconnaissance Systems	07	17,565				U
216	0305208M	Distributed Common Ground/Surface Systems	07	8,334	23,785		23,785	U
217	0305208N	Distributed Common Ground/Surface Systems	07	16,549	25,453		25,453	U
218	0305220N	RQ-4 UAV	07	525,552	548,267		548,267	U
219	0305231N	MQ-8 UAV	07	67,048	108,248		108,248	U
220	0305232M	RQ-11 UAV	07	509	979		979	U
221	0305233N	RQ-7 UAV	07	25,229	872		872	U
222	0305234M	Small (Level 0) Tactical UAS (STUASL0)	07	26,076				U
223	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	12,645	21,387		21,387	U
224	0305237N	Medium Range Maritime UAS	07		15,000		15,000	U
225	0305239M	RQ-21A	07		24,201		24,201	U
226	0308601N	Modeling and Simulation Support	07	7,963	8,292		8,292	U
227	0702207N	Depot Maintenance (Non-IF)	07	17,750	21,446		21,446	U
228	0702239N	Avionics Component Improvement Program	07	3,177				U
229	0708011N	Industrial Preparedness	07	44,626	54,031		54,031	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - xxix

## UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test &amp; Eval, Navy

Line No	Program Element Number	Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
---	-----	----	---	-----	-----	-----	c
210	0305149N	COBRA JUDY	07	17,091		17,091	U
211	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	07	810		810	U
212	0305192N	Military Intelligence Program (MIP) Activities	07	8,617		8,617	U
213	0305204N	Tactical Unmanned Aerial Vehicles	07	9,066		9,066	U
214	0305206N	Airborne Reconnaissance Systems	07				U
215	0305207N	Manned Reconnaissance Systems	07	30,654		30,654	U
216	0305208M	Distributed Common Ground/Surface Systems	07	25,917		25,917	U
217	0305208N	Distributed Common Ground/Surface Systems	07	14,676		14,676	U
218	0305220N	RQ-4 UAV	07	657,483		657,483	U
219	0305231N	MQ-8 UAV	07	99,600		99,600	U
220	0305232M	RQ-11 UAV	07	495		495	U
221	0305233N	RQ-7 UAV	07	863	7,600	8,463	U
222	0305234M	Small (Level 0) Tactical UAS (STUASL0)	07				U
223	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	9,734		9,734	U
224	0305237N	Medium Range Maritime UAS	07				U
225	0305239M	RQ-21A	07	22,343		22,343	U
226	0308601N	Modeling and Simulation Support	07	5,908		5,908	U
227	0702207N	Depot Maintenance (Non-IF)	07	27,391		27,391	U
228	0702239N	Avionics Component Improvement Program	07				U
229	0708011N	Industrial Preparedness	07	54,879		54,879	U

R-1C: FY 2013 President's Budget (Published Version), as of January 18, 2012 at 11:19:58

UNCLASSIFIED

Volume 2 - xxx



UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Element Number	Program Item	Act	FY 2011 Actuals	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Se
230	0708730N	Maritime Technology (MARITECH)	07		5,000		5,000	U
9999	9999999999	Classified Programs		1,527,746	1,306,945	33,784	1,340,729	U
		Operational Systems Development		4,391,753	4,086,616	41,334	4,127,950	
Total Research, Development, Test & Eval, Navy				17,865,538	17,739,575	53,884	17,793,459	

UNCLASSIFIED

Department of the Navy  
 FY 2013 President's Budget  
 Exhibit R-1 FY 2013 President's Budget  
 Total Obligational Authority  
 (Dollars in Thousands)

18 Jan 2012

Appropriation: 1319N Research, Development, Test & Eval, Navy

Line No	Element Number	Program Item	Act	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Se
230	0708730N	Maritime Technology (MARITECH)	07	5,000		5,000	U
9999	9999999999	Classified Programs		1,151,159	33,784	1,184,943	U
		Operational Systems Development		3,975,546	48,146	4,023,692	
Total Research, Development, Test & Eval, Navy				16,882,877	60,119	16,942,996	

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

**Program Element Table of Contents (by Budget Activity then Line Item Number)**

***Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)***  
***Appropriation 1319: Research, Development, Test & Evaluation, Navy***

.....

<b>Line Item</b>	<b>Budget Activity</b>	<b>Program Element Number</b>	<b>Program Element Title</b>	<b>Page</b>
27	04	0603128N	(U)Unmanned Aerial System.....	Volume 2 - 1
28	04	0603207N	Air/Ocean Tactical Applications.....	Volume 2 - 5
29	04	0603216N	Aviation Survivability.....	Volume 2 - 63
30	04	0603237N	Deployable JT Cmd & Control.....	Volume 2 - 85
31	04	0603251N	Aircraft Systems.....	Volume 2 - 93
32	04	0603254N	ASW Systems Development.....	Volume 2 - 107
33	04	0603261N	Tactical Airborne Reconnaissance.....	Volume 2 - 119
34	04	0603382N	Advanced Combat Systems Tech.....	Volume 2 - 135
35	04	0603502N	Surface & Shallow Water MCM.....	Volume 2 - 147
36	04	0603506N	Surface Ship Torpedo Defense.....	Volume 2 - 211
37	04	0603512N	Carrier Systems Development.....	Volume 2 - 223
38	04	0603513N	Shipboard Sys Component Dev.....	Volume 2 - 259
39	04	0603525N	(U)PILOT FISH.....	Volume 2 - 261
40	04	0603527N	(U)RETRACT LARCH.....	Volume 2 - 263
41	04	0603536N	(U)RETRACT JUNIPER.....	Volume 2 - 265

**UNCLASSIFIED**

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

**Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)**  
**Appropriation 1319: Research, Development, Test & Evaluation, Navy**

<b>Line Item</b>	<b>Budget Activity</b>	<b>Program Element Number</b>	<b>Program Element Title</b>	<b>Page</b>
42	04	0603542N	Radiological Control.....	Volume 2 - 267
43	04	0603553N	Surface ASW.....	Volume 2 - 277
44	04	0603561N	Advanced Submarine System Development.....	Volume 2 - 291
45	04	0603562N	Submarine Tactical Warfare Sys.....	Volume 2 - 333
46	04	0603563N	Ship Concept Advanced Design.....	Volume 2 - 349
47	04	0603564N	Ship Prel Design & Feasibility Studies.....	Volume 2 - 365
48	04	0603570N	Advanced Nuclear Power Systems.....	Volume 2 - 389
49	04	0603573N	Advanced Surface Machinery Sys.....	Volume 2 - 397
50	04	0603576N	(U)CHALK EAGLE.....	Volume 2 - 409
51	04	0603581N	Littoral Combat Ship (LCS).....	Volume 2 - 411
52	04	0603582N	Combat System Integration.....	Volume 2 - 459
53	04	0603609N	Conventional Munitions.....	Volume 2 - 495
54	04	0603611M	Marine Corps Assault Vehicles.....	Volume 2 - 501
55	04	0603635M	Marine Corps Grnd Cmbt/Supt Sys.....	Volume 2 - 517
56	04	0603654N	JT Service Explosive Ordn Dev.....	Volume 2 - 541
57	04	0603658N	Cooperative Engagement.....	Volume 2 - 571
58	04	0603713N	Ocean Engineering Tech Dev.....	Volume 2 - 585
59	04	0603721N	Environmental Protection.....	Volume 2 - 601

**UNCLASSIFIED**

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

***Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)***  
***Appropriation 1319: Research, Development, Test & Evaluation, Navy***

.....

<b>Line Item</b>	<b>Budget Activity</b>	<b>Program Element Number</b>	<b>Program Element Title</b>	<b>Page</b>
60	04	0603724N	Navy Energy Program.....	Volume 2 - 629
61	04	0603725N	Facilities Improvement.....	Volume 2 - 665
62	04	0603734N	(U)CHALK CORAL.....	Volume 2 - 689
63	04	0603739N	Navy Logistic Productivity.....	Volume 2 - 691
64	04	0603746N	(U)RETRACT MAPLE.....	Volume 2 - 709
65	04	0603748N	(U)LINK PLUMERIA.....	Volume 2 - 711
66	04	0603751N	(U)RETRACT ELM.....	Volume 2 - 713
67	04	0603755N	Ship Self Defense - DEM/VAL.....	Volume 2 - 715
68	04	0603764N	(U)LINK EVERGREEN.....	Volume 2 - 723
69	04	0603787N	(U)SPECIAL PROCESSES.....	Volume 2 - 725
70	04	0603790N	NATO Research and Deve.....	Volume 2 - 727
71	04	0603795N	Land Attack Tech.....	Volume 2 - 733
72	04	0603851M	Joint Non-Lethal Weapons Testing.....	Volume 2 - 739
73	04	0603860N	JT Precision Approach & Ldg Sys.....	Volume 2 - 751
74	04	0603889N	Counterdrug RDT&E Projects.....	Volume 2 - 769
75	04	0603925N	Directed Energy and Electric Weapon System.....	Volume 2 - 771
76	04	0604272N	Tact Air Dir Infrared CM (TADIRCM).....	Volume 2 - 779
77	04	0604279N	(U)ASE Self Protection Optimization.....	Volume 2 - 795

**UNCLASSIFIED**

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

***Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)***  
***Appropriation 1319: Research, Development, Test & Evaluation, Navy***

.....

<b>Line Item</b>	<b>Budget Activity</b>	<b>Program Element Number</b>	<b>Program Element Title</b>	<b>Page</b>
78	04	0604653N	JT Cntr Radio Controlled IED Elec War (JCREW).....	Volume 2 - 799
79	04	0604659N	(U)Precision Strike Weapons Development Program.....	Volume 2 - 809
80	04	0604707N	SEW Architecture/Eng Support.....	Volume 2 - 821
81	04	0604775N	Defense Rapid Innovation Program.....	Volume 2 - 859
82	04	0604786N	(U)Offensive Anti-Surface Warfare Weapon Dev.....	Volume 2 - 863
83	04	0605812M	(U)Joint Light Tactical Vehicle(JLTV) EMD.....	Volume 2 - 871
84	04	0303354N	ASW Systems Development - MIP.....	Volume 2 - 879
85	04	0303562N	Submarine Tactical Warfare Systems - MIP.....	Volume 2 - 887
86	04	0304270N	Electronic Warfare Development - MIP.....	Volume 2 - 893

**UNCLASSIFIED**

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

**Program Element Table of Contents (Alphabetically by Program Element Title)**

<b>Program Element Title</b>	<b>Program Element Number</b>	<b>Line Item</b>	<b>Budget Activity</b>	<b>Page</b>
(U)ASE Self Protection Optimization	0604279N	77	04.....Volume 2 - 795	
(U)CHALK CORAL	0603734N	62	04.....Volume 2 - 689	
(U)CHALK EAGLE	0603576N	50	04.....Volume 2 - 409	
(U)Joint Light Tactical Vehicle(JLTV) EMD	0605812M	83	04.....Volume 2 - 871	
(U)LINK EVERGREEN	0603764N	68	04.....Volume 2 - 723	
(U)LINK PLUMERIA	0603748N	65	04.....Volume 2 - 711	
(U)Offensive Anti-Surface Warfare Weapon Dev	0604786N	82	04.....Volume 2 - 863	
(U)PILOT FISH	0603525N	39	04.....Volume 2 - 261	
(U)Precision Strike Weapons Development Program	0604659N	79	04.....Volume 2 - 809	
(U)RETRACT ELM	0603751N	66	04.....Volume 2 - 713	
(U)RETRACT JUNIPER	0603536N	41	04.....Volume 2 - 265	
(U)RETRACT LARCH	0603527N	40	04.....Volume 2 - 263	
(U)RETRACT MAPLE	0603746N	64	04.....Volume 2 - 709	
(U)SPECIAL PROCESSES	0603787N	69	04.....Volume 2 - 725	
(U)Unmanned Aerial System	0603128N	27	04.....Volume 2 - 1	
ASW Systems Development	0603254N	32	04.....Volume 2 - 107	
ASW Systems Development - MIP	0303354N	84	04.....Volume 2 - 879	

**UNCLASSIFIED**

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

<b>Program Element Title</b>	<b>Program Element Number</b>	<b>Line Item</b>	<b>Budget Activity</b>	<b>Page</b>
Advanced Combat Systems Tech	0603382N	34	04.....Volume 2 -	135
Advanced Nuclear Power Systems	0603570N	48	04.....Volume 2 -	389
Advanced Submarine System Development	0603561N	44	04.....Volume 2 -	291
Advanced Surface Machinery Sys	0603573N	49	04.....Volume 2 -	397
Air/Ocean Tactical Applications	0603207N	28	04.....Volume 2 -	5
Aircraft Systems	0603251N	31	04.....Volume 2 -	93
Aviation Survivability	0603216N	29	04.....Volume 2 -	63
Carrier Systems Development	0603512N	37	04.....Volume 2 -	223
Combat System Integration	0603582N	52	04.....Volume 2 -	459
Conventional Munitions	0603609N	53	04.....Volume 2 -	495
Cooperative Engagement	0603658N	57	04.....Volume 2 -	571
Counterdrug RDT&E Projects	0603889N	74	04.....Volume 2 -	769
Defense Rapid Innovation Program	0604775N	81	04.....Volume 2 -	859
Deployable JT Cmd & Control	0603237N	30	04.....Volume 2 -	85
Directed Energy and Electric Weapon System	0603925N	75	04.....Volume 2 -	771
Electronic Warfare Development - MIP	0304270N	86	04.....Volume 2 -	893
Environmental Protection	0603721N	59	04.....Volume 2 -	601
Facilities Improvement	0603725N	61	04.....Volume 2 -	665
JT Cntr Radio Controlled IED Elec War (JCREW)	0604653N	78	04.....Volume 2 -	799
JT Precision Approach & Ldg Sys	0603860N	73	04.....Volume 2 -	751

**UNCLASSIFIED**



**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

<b>Program Element Title</b>	<b>Program Element Number</b>	<b>Line Item</b>	<b>Budget Activity</b>	<b>Page</b>
JT Service Explosive Ordn Dev	0603654N	56	04.....Volume 2 -	541
Joint Non-Lethal Weapons Testing	0603851M	72	04.....Volume 2 -	739
Land Attack Tech	0603795N	71	04.....Volume 2 -	733
Littoral Combat Ship (LCS)	0603581N	51	04.....Volume 2 -	411
Marine Corps Assault Vehicles	0603611M	54	04.....Volume 2 -	501
Marine Corps Grnd Cmbt/Supt Sys	0603635M	55	04.....Volume 2 -	517
NATO Research and Deve	0603790N	70	04.....Volume 2 -	727
Navy Energy Program	0603724N	60	04.....Volume 2 -	629
Navy Logistic Productivity	0603739N	63	04.....Volume 2 -	691
Ocean Engineering Tech Dev	0603713N	58	04.....Volume 2 -	585
Radiological Control	0603542N	42	04.....Volume 2 -	267
SEW Architecture/Eng Support	0604707N	80	04.....Volume 2 -	821
Ship Concept Advanced Design	0603563N	46	04.....Volume 2 -	349
Ship Prel Design & Feasibility Studies	0603564N	47	04.....Volume 2 -	365
Ship Self Defense - DEM/VAL	0603755N	67	04.....Volume 2 -	715
Shipboard Sys Component Dev	0603513N	38	04.....Volume 2 -	259
Submarine Tactical Warfare Sys	0603562N	45	04.....Volume 2 -	333
Submarine Tactical Warfare Systems - MIP	0303562N	85	04.....Volume 2 -	887
Surface & Shallow Water MCM	0603502N	35	04.....Volume 2 -	147
Surface ASW	0603553N	43	04.....Volume 2 -	277

**UNCLASSIFIED**

**UNCLASSIFIED**

Navy • President's Budget Submission FY 2013 • RDT&E Program

<b>Program Element Title</b>	<b>Program Element Number</b>	<b>Line Item</b>	<b>Budget Activity</b>	<b>Page</b>
Surface Ship Torpedo Defense	0603506N	36	04.....Volume 2 -	211
Tact Air Dir Infrared CM (TADIRCM)	0604272N	76	04.....Volume 2 -	779
Tactical Airborne Reconnaissance	0603261N	33	04.....Volume 2 -	119

**UNCLASSIFIED**

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603128N: <i>(U)Unmanned Aerial System</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	36.000	-	-	-	-	-	-	-	-	0.000	36.000
9999: <i>Congressional Adds</i>	36.000	-	-	-	-	-	-	-	-	0.000	36.000

**Note**

Other prior year funding: Cargo Unmanned Aerial System (UAS) received FY10 Emergency Supplemental funding under Program Element 0305204N Project Unit 3332 in the amount of \$26.5M and a SOCOM ATR of \$25.0M for 2 proof of concept air vehicles, 3 Forward Operating Bases, Ground Control Stations, non-recurring engineering and testing efforts from each of the two contractors.

**A. Mission Description and Budget Item Justification**

This program element includes non-lethal joint Unmanned Aerial Vehicle system support for DoD to provide the warfighters with long-range and long-endurance cargo capability. This will augment ground and air logistics operations, supplement rotary-wing assets and reduce warfighters exposure to Improvised Explosive Devices in theater.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	-	-	-	-	-
Current President's Budget	36.000	-	-	-	-
Total Adjustments	36.000	-	-	-	-
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Program Adjustments	36.000	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *CARGO UAS - Cong*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2011	FY 2012
	36.000	-
Congressional Add Subtotals for Project: 9999	36.000	-
Congressional Add Totals for all Projects	36.000	-

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**  
1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
PE 0603128N: *(U)Unmanned Aerial System*

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603128N: <i>(U)Unmanned Aerial System</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	36.000	-	-	-	-	-	-	-	-	0.000	36.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Cargo UAS will address the immediate Marine Corps need as described in the Joint Urgent Operational Needs Statement (CC-0375) for combat re-supply of remote Forward Operating Bases (FOBs) without unnecessary risk to Marine Corps personnel or high volume logistics assets. This need has been filled by ground transportation (truck convoys) and with manned assault support cargo rotary wing assets. Both alternatives expose unnecessary risk to Marine Corps personnel, and impact the availability of the aviation assets for other combat support missions. The Cargo UAS service will apply to the deployed I Marine Expeditionary Force (I MEF), Forward, deployed in Afghanistan. The current concept of operations is to provide support from one Main Operating Base to three FOBs.

Current combat operations have highlighted the vulnerability and effectiveness of existing modes of resupply. To mitigate this threat, it is imperative that alternative methods to resupply remote Spokes (also called the FOBs) be employed. A vertical lift Cargo UAS is required to augment existing resupply methods in Afghanistan and is required immediately to fulfill war fighter needs. Special Operations Command will monitor the program to help determine their future requirements.

A Cargo UAS is comprised of air vehicles, Ground Control Stations and associated spares and support equipment. The system will support the I MEF, Forward while operating from selected FOBs. The air vehicles and remote terminal control stations are procured by the government, and the Cargo UAS is operated as a Government Owned, Contractor Operated system.

The Cargo UAS was granted Rapid Deployment Capability program status by the Assistant Secretary of the Navy for Research, Development and Acquisition on 17 May 2010. The contracts were competed and comprised of the Lockheed Martin KMAX and the Boeing Hummingbird air vehicles. A down-select was conducted resulting in KMAX deploying and commencing Afghanistan operations in December 2011. Cargo UAS Afghanistan operations are funded via Operations and Maintenance, Navy (O&MN) Overseas Contingency Operations funding in FY12 and the Marine Corps will support as required in future years.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2011	FY 2012
<b>Congressional Add:</b> CARGO UAS - Cong	36.000	-
<b>FY 2011 Accomplishments:</b> The Cargo UAS will address the immediate Marine Corps need as described in the Joint Urgent Operational Needs Statement (CC-0375).		
<b>Congressional Adds Subtotals</b>	36.000	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603128N: <i>(U)Unmanned Aerial System</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• O&M,N: <i>0708017N 1D4D Cargo</i> <i>UAS</i>	0.000	18.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

**D. Acquisition Strategy**

Not required for Congressional Adds.

**E. Performance Metrics**

Not required for Congressional Adds.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	115.072	84.962	34.085	-	34.085	30.931	41.509	46.968	45.898	Continuing	Continuing
2341: <i>METOC Data Acquisition</i>	14.719	6.073	6.702	-	6.702	6.724	6.886	6.845	6.958	Continuing	Continuing
2342.: <i>METOC Data Assimilation and Mod</i>	14.750	10.636	14.127	-	14.127	14.875	17.654	18.127	20.586	Continuing	Continuing
2343: <i>Tactical METOC Applications</i>	12.226	9.562	9.172	-	9.172	5.453	13.960	19.509	16.231	Continuing	Continuing
2344.: <i>Precise Timing and Astronomy</i>	1.973	1.025	3.043	-	3.043	2.814	1.923	1.382	0.999	Continuing	Continuing
3207: <i>Fleet Synthetic Training</i>	3.311	0.968	1.041	-	1.041	1.065	1.086	1.105	1.124	Continuing	Continuing
3229: <i>JMAPS</i>	68.093	56.698	-	-	-	-	-	-	-	0.000	124.791

**A. Mission Description and Budget Item Justification**

The Air Ocean Tactical Applications (AOTA) Program Element is fully aligned with the Navy's maritime strategy to enhance the future mission capabilities of the Navy-Marine Corps Team. New state-of-the art government and commercial technologies are identified, transitioned, demonstrated and then integrated into Combat Systems and programs of record and Tactical Decision Aids that determine in real-time and near-real-time the operational effects of the physical environment on the performance of combat forces and their new and emerging platforms, sensors, systems and munitions. The AOTA program element focuses on sensing and characterizing and predicting the littoral and deep-strike battlespace in the context of regional conflicts and crisis response scenarios. Projects in this program element transition state-of-the art sensing, assimilation, modeling and decision aid technologies from Government and commercial sources. Unique project development efforts include atmospheric and oceanographic data assimilation techniques, forecast models, data base management systems and associated software for use in mainframe, desktop and laptop computers. Model data, products and services can be used by forward-deployed personnel or in a reach-back mode to optimize sensor placement and force allocation decisions. Global Geospatial Information and Services efforts within this program address the bathymetric needs of the Navy. Also developed are algorithms to process new satellite sensor data for integration into Navy and Marine Corps decision support systems and for display as part of the common operational and tactical pictures. In addition, the projects provide for demonstration and validation of specialized atmospheric and oceanographic instrumentation and measurement techniques, new sensors, communications and interfaces. Included are new capabilities to assess, predict and enhance the performance of current and emerging undersea warfare and mine warfare weapons systems. AOTA capabilities are designed to support the latest versions of the Global Command and Control System and specific unit-level combat systems. Finally, this program develops technological upgrades for the U.S. Naval Observatory's Master Clock system to meet requirements with the demands of Department of Defense communications, cryptographic, intelligence, geolocation, and targeting systems; develops near-real-time earth orientation predictions; develops very precise determination of positions of both faint and bright stars; and supports satellite tracking and space debris studies.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>
---	---

Major emphasis areas include the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) and the Meteorological and Oceanographic (METOC) Future Mission Capabilities, the METOC Space-Based Sensing Capabilities, the Precise Timing and Astrometry, the Fleet Synthetic Training, the Tactical Oceanographic Capabilities for Under Sea Warfare and the Earth System Prediction Capability projects.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	123.331	94.972	61.382	-	61.382
Current President's Budget	115.072	84.962	34.085	-	34.085
Total Adjustments	-8.259	-10.010	-27.297	-	-27.297
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-10.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.068	-			
• SBIR/STTR Transfer	-1.575	-			
• Program Adjustments	-	-	-26.764	-	-26.764
• Rate/Misc Adjustments	-	-	-0.533	-	-0.533
• Congressional General Reductions Adjustments	-0.616	-	-	-	-
• Congressional Directed Reductions Adjustments	-5.000	-	-	-	-

**Change Summary Explanation**

Technical: Beginning in FY13 the Navy will begin investment in the development of the Earth System Prediction Capability project. The Navy has restored Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program development efforts after FY13. Schedule: A schedule for the ESPC project, beginning in FY13, has been added to project 2342 "METOC Data Assimilation & Modeling". The schedule for the Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program of record has been updated to reflect that the Navy has restored the programs development efforts after FY13.



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2341: <i>METOC Data Acquisition</i>	14.719	6.073	6.702	-	6.702	6.724	6.886	6.845	6.958	Continuing	Continuing
Quantity of RDT&E Articles	2	0	0	0	0	0	0	0	0		

**Note**

Littoral Battlespace Sensing, Unmanned Undersea Vehicles (LBS-UUV) FY 2012 efforts continued in PE 0604218N (Air/Ocean Equipment Engineering) project 2345 (Fleet METOC Equipment).

Quantity of 2 RDT&E Articles for FY 2011 represent Littoral Battlespace Sensing, Autonomous Undersea Vehicles (LBS-AUV) Engineering Design Models (EDMs).

**A. Mission Description and Budget Item Justification**

The major thrust of the Meteorology and Oceanography (METOC) Data Acquisition Project is to provide future mission capabilities to warfighters that will allow them to detect and monitor the conditions of the physical environment throughout the entire battlespace. New sensor technologies (including unmanned vehicles, tactical sensor exploitation, in-situ sensors) identified as the most promising candidates are transitioned from the government's and commercial industry's technology base. These new sensor technologies are demonstrated, validated and integrated into operational programs for warfighters. These new sensor capabilities provide timely and accurate METOC data and products to operational and tactical commanders. METOC data requirements have likewise evolved as the emphasis on naval warfare has evolved from blue water operations to the littoral and deep strike battlespace. The littoral and deep strike regions are dynamic and complex, characterized by strong and variable oceanographic and atmospheric conditions. The need to accurately characterize these conditions is more crucial than ever in planning and executing warfare operations and effectively allocating force weapon and sensor systems. Routinely available data sources, such as climatology, oceanographic and meteorological numerical models, and satellite remote sensing are necessary but not sufficient to support these warfare areas in the littoral and deep strike regions. Operational sensors are deployed great distances from the target area of interest. The challenge is to collect and disseminate METOC data in variable and dynamic littoral environmental conditions or in denied, remote or inaccessible areas over extended periods of time. This project: 1) provides the means to rapidly and automatically acquire a broad array of METOC data using both off-board and on-board sensors; 2) provides an on-scene assessment capability for the tactical commander; 3) provides the tactical commander with real-time METOC data and products for operational use; 4) demonstrates and validates the use of tactical workstations and desktop computers for processing and display of METOC data and products; 5) demonstrates and validates techniques which employ data compression, connectivity and interface technologies to obtain, store, process, distribute and display these METOC data and products; 6) develops new charting and bathymetric survey techniques necessary to reduce the existing shortfall in coastal hydrographic survey requirements; 7) develops an expanded database for predictive METOC models in areas of interest; and 8) supports the development of radar weather using through-the-sensor techniques.

Major emphasis areas include the Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) and the Tactical Oceanographic Capabilities / Under Sea Warfare (TOC/USW) projects.

FY 2013 request provides for continued advanced software and hardware component and prototype efforts associated with acquiring environmental data, and METOC data transport, storage, delivery, design, development efforts, and develop METOC network integration capability.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>		<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
<b>Title:</b> Littoral Battlespace Sensing, Unmanned Undersea Vehicles (LBS-UUV)		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Articles:</b>		2.465 2	-	-
<b>FY 2011 Accomplishments:</b> Updated Littoral Battlespace Sensing, Glider (LBS-G) engineering studies, and cost estimates for the LBS-G Engineering Change Proposals (ECPs) as required. Continued the Littoral Battlespace Sensing, Autonomous Undersea Vehicles (LBS-AUV) Engineering Manufacturing Development (EMD) (formerly SDD) phase (LBS-AUV Milestone C (MS-C) is scheduled for Q3/Q4 FY12). Developed the LBS-AUV Capability Production Document (CPD) and other required MS-C documentation. Conducted the LBS-AUV Critical Design Review (CDR). Developed two LBS-AUV EDMs and begin associated technical and engineering reviews. FY 2012 efforts continued in PE 0604218N (Air/Ocean Equipment Engineering) project 2345 (Fleet METOC Equipment).				
<b>Title:</b> Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Articles:</b>		7.041 0	5.761 0	6.390 0
<b>FY 2011 Accomplishments:</b> Continued advanced component and prototype efforts associated with acquiring environmental data. Continued development of advanced data measurement and survey techniques to improve survey planning and execution. Continued development of improved data quality control technologies and the automation of data acquisition processes. Continued to develop advanced technologies and techniques to improve Geospatial Information and Services (GI&S) capabilities within Navy Meteorology and Oceanography (METOC) production centers and throughout the fleet user base. Continued to implement Through The Sensor (TTS) technologies to use tactical detection systems to characterize undersea and atmospheric environment in the battlespace integrate with analysis, distribution, and tactical decision systems. Developed advanced data acquisition and data processing techniques for oceanographic and atmospheric data.				
<b>FY 2012 Plans:</b> Continue advanced component and prototype efforts associated with acquiring environmental data. Continue to develop advanced data measurement and survey techniques that capture measurement uncertainties in order to provide warfare commanders with an accurate assessment of uncertainty in sensor performance prediction products and services. Continue development of improved data quality control technologies and the automation of data acquisition processes. Continue to develop advanced technologies and techniques to improve Geospatial Information and Services (GI&S) capabilities within Navy METOC production centers and throughout the fleet user base. Develop advanced data acquisition, data processing and analysis techniques for GI&S, oceanographic and atmospheric data and information. Develop METOC data and product delivery technologies.				
<b>FY 2013 Plans:</b> Continue advanced component and prototype development efforts associated with acquiring environmental data and develop advanced techniques for data measurement and survey techniques that capture measurement uncertainties in order to provide				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>		<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
warfare commanders with an accurate assessment of uncertainty in sensor performance prediction products and services. Continue development of improved data quality control technologies and the automation of data acquisition processes and develop advanced technologies and techniques to improve Geospatial Information and Services (GI&S) capabilities within Navy METOC product production centers and throughout the fleet user base. Continue to develop Through-The-Sensor (TTS) technologies that use tactical detection systems where applicable to characterize undersea and atmospheric environment in the battlespace. Develop METOC network integration capability and continue to develop systems engineering plans, requirements, standards, studies, and other documentation supporting integration of these products.		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Tactical Oceanography Capabilities / Undersea Warfare (USW)		5.213	0.312	0.312
<b>Articles:</b>		0	0	0
<b>FY 2011 Accomplishments:</b> Developed current advanced data collection systems to generate products and populate databases that characterize the acoustic environment in support of Undersea Warfare (USW) missions. Developed autonomous underwater vehicle/system (AUV) technology demonstrations to measure in-situ oceanographic, acoustic and geoacoustic parameters remotely from Fleet survey vessels. Continued to develop capabilities to calculate acoustic transmission loss (TL) values in tactical timeframes to include uncertainty quantification of those values. Continued to develop next generation acoustic bottom loss and backscatter databases and database structures for transition into U.S. Navy USW Tactical Decision Aids (TDAs). Conducted Validation and Verification (V&V) of next generation acoustic models, databases and algorithms. Continued to develop improved techniques to support geoacoustic and oceanographic survey operations. Continued to develop algorithms for inclusion of bioacoustic effects in acoustic surveys and Navy USW operations. Developed active acoustic sources to aid geoacoustic survey operations. Provided project technical and program management oversight.				
<b>FY 2012 Plans:</b> Continue to transition models, algorithms and databases that either calculate accurate acoustic TL or characterize environmental parameters that affect TL and develop TL calculation implementations. Continue to develop capabilities to calculate acoustic TL values in tactical timeframes to include uncertainty quantification of those values. The Navy has canceled all previously funded Ocean Bottom Characterization Initiative (OBCI) activities.				
<b>FY 2013 Plans:</b> Continue to transition models, algorithms and databases that either calculate accurate acoustic TL or characterize environmental parameters that affect TL and develop TL calculation implementations. Continue to develop capabilities to calculate acoustic TL values in tactical timeframes to include uncertainty quantification of those values.				
<b>Accomplishments/Planned Programs Subtotals</b>		14.719	6.073	6.702

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>
---	---	---

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/4226: <i>METEOROLOGICAL EQUIPMENT</i>	25.442	30.278	18.339	0.000	18.339	20.154	20.831	20.528	20.926	Continuing	Continuing
• RDTEN/0604218N/2345: <i>FLEET METOC EQUIPMENT</i>	3.987	4.436	2.615	0.000	2.615	2.751	2.865	2.821	2.872	Continuing	Continuing
• RDTEN/0603207N/2342: <i>METOC DATA ASSIMILATION AND MOD</i>	14.750	10.636	11.127	0.000	11.127	9.875	9.854	9.827	9.986	Continuing	Continuing
• RDTEN/0604218N/2346: <i>METOC SENSOR ENGINEERING</i>	1.509	1.486	1.445	0.000	1.445	1.490	1.506	1.517	1.543	Continuing	Continuing

**D. Acquisition Strategy**

Acquisition, management and contracting strategies are to support the meteorological and oceanographic (METOC) Data Acquisition Project to develop, demonstrate, and validate METOC data collection methods and sensors, and to evolve the ability to provide timely and accurate METOC data and products to the Tactical Commander, all with management oversight by the Navy.

**E. Performance Metrics**

Goal: Develop techniques and tools to acquire METOC data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models. Advanced sensor component, data collection, and meteorological, oceanographic and hydrographic survey technique development tasks are directed by Resource Sponsor, with input from external Systems Commands and/or Type Commanders, in response to validated capability gaps or operational fleet requirements. Wherever applicable, and based on favorable Science & Technology (S&T) assessments, tasks shall leverage or transition existing Small Business Innovative Research and/or RDT&E Budget Activity 6.2 - 6.3 S&T work.

Metric -- Tasks will address no less than 75% of applicable capability gaps and requirements.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
METOC Future Mission Capabilities	WR	Naval Research Laboartory:Washington, DC	60.501	4.949	Oct 2011	5.554	Oct 2012	-		5.554	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	WR	SSC PAC:California	22.033	0.150	Oct 2011	0.108	Oct 2012	-		0.108	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	Various	Various:Various	43.021	-		-		-		-	0.000	43.021	
LBS-G	C/CPIF	Teledyne Brown Eng:Alabama	6.557	-		-		-		-	0.000	6.557	
METOC Future Mission Capabilities	WR	NPGS:Monterey, CA	0.200	0.200	Oct 2011	0.195	Oct 2012	-		0.195	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	C/FP	Penn State University:PA	0.300	0.290	Dec 2011	0.271	Dec 2012	-		0.271	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	WR	NRL:Washington, DC	1.400	0.284	Oct 2011	0.312	Oct 2012	-		0.312	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	Hydroid INC:Pocasset, MA	1.865	-		-		-		-	0.000	1.865	
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	C/FP	Univ. of Texas:Texas	1.300	-		-		-		-	0.000	1.300	
Tactical Oceanography Capabilities / Undersea Warfare (TOC USW)	WR	SSC PAC:California	2.754	-		-		-		-	0.000	2.754	
<b>Subtotal</b>			139.931	5.873		6.440		-		6.440			

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>
---	---	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
METOC Future Mission Capabilities	C/CPIF	Various:Various	2.672	-		-		-		-	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	SAIC:Virgina	0.600	-		-		-		-	0.000	0.600	
<b>Subtotal</b>			3.272	-		-		-		-			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
METOC Future Mission Capabilities	WR	OPTEVFOR:Virginia	0.160	-		-		-		-	0.000	0.160	
METOC Future Mission Capabilities	MIPR	JITC:Arizona	0.040	-		-		-		-	0.000	0.040	
<b>Subtotal</b>			0.200	-		-		-		-	0.000	0.200	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Acquisition Workforce	Various	Not Specified:Not Specified	0.096	-		-		-		-	0.000	0.096	
METOC Future Mission Capabilities Management Support	C/FP	BAH:Virgina	0.200	0.200	Nov 2011	0.262	Nov 2012	-		0.262	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.296	0.200		0.262		-		0.262			

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Project Cost Totals</b>		143.699	6.073		6.702	-		6.702			

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy						DATE: February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>			<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>			
	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>METOC Future Mission Capabilities (FMC)</b>																												
Geospatial Information and Services (GI&S) System Development / Demonstration:																												
Tactical Environmental Processor (TEP) Development / Demonstration:																												
Through-the-Sensor (TTS) Development / Demonstration: FY11																												
Through-the-Sensor (TTS) Development / Demonstration: FY13-15																												
Ocean-Atmos Acquisition & Processing Development / Demonstration:																												



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2341: <i>METOC Data Acquisition</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>METOC Future Mission Capabilities (FMC)</i></b>				
Geospacial Information and Services (GI&S) System Development / Demonstration:	1	2011	4	2014
Tactical Environmental Processor (TEP) Development / Demonstration:	1	2011	4	2011
Through-the-Sensor (TTS) Development / Demonstration: FY11	1	2011	4	2011
Through-the-Sensor (TTS) Development / Demonstration: FY13-15	1	2013	4	2015
Ocean-Atmos Acquisition & Processing Development / Demonstration:	1	2011	4	2017

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy								<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>				<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2342.: <i>METOC Data Assimilation and Mod</i>	14.750	10.636	14.127	-	14.127	14.875	17.654	18.127	20.586	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The meteorological and oceanographic (METOC) Data Assimilation Project is a multi-faceted project that provides future mission capabilities for warfighters to characterize the physical environment within their battlespace. This project includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers. Included are numerical oceanographic and atmospheric models for the Large Scale Computers at the Navy Fleet Numerical Meteorology and Oceanography Center (FNMOC), Monterey, CA and the Naval Oceanographic Office (NAVO), Stennis Space Center, MS. These models, combined with a global communications network for data acquisition and distribution, form a prediction system which provides METOC data and products necessary to support naval operations worldwide in virtually every mission area; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; 4) future METOC and environmental satellite data readiness and risk reduction preparations to develop hardware and software that will allow ground stations to receive, ingest and exploit satellite data including the National Polar Orbiting Operational Environmental Satellite System (NPOESS) Preparatory Project (NPP), the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) Polar Systems' Meteorological Operational satellites A & B (METOP-A & B), Joint Polar Satellite System (JPSS), and Defense Meteorological Satellite Program (DMSP). These techniques allow for the integration and tactical application of significant oceanographic and atmospheric data derived from satellite-borne sensors. Satellite and unmanned sensor data, combined with manned platform data are foundational to a robust numerical weather and oceanographic modeling capability that predicts battlespace conditions impacting fleet and adversary weapon and sensor performance. Included are techniques and algorithms for the processing of sensor measurements, conversion of raw signal data to geophysical information, analysis schemes encompassing Artificial Intelligence and Expert Systems, and other satellite data applications and field validation of end products; and, 5) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products. As weapons and sensors become more sophisticated and complex, the marine environment has an increasingly significant impact on system performance. Operational limitations induced by the ocean and atmosphere must be understood, and the resulting constraints on mission effectiveness and system employment minimized. Hence, the operating forces require more accurate worldwide forecasts of METOC conditions with increased temporal and spatial resolution. An additional challenge is posed by the emergence of new satellite sensor data. In order to fully exploit this dynamic and massive volume of data, modern Data Base Management Systems are required, and must be tailored for individual computer configurations at both FNMOC and NAVO. Improved representation of smaller-scale phenomena, particularly in the littoral, is also an important consideration. Intelligence Preparation of the Environment Sensor R&D to meet Chief of Naval Operations and Commander, Fleet Forces Command requirements for remote autonomous, clandestine, littoral battlespace sensing in near shore areas in support of Sea Shield & Sea Basing.

Major emphasis areas include the Meteorological and Oceanographic Future Mission Capabilities (METOC) the Meteorological and Oceanographic (METOC) Space-Based Sensing Capabilities, and the Tactical Oceanographic Capabilities / Under Sea Warfare projects.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

FY 2013 request provides for continued advanced component development and prototype efforts associated with advanced data assimilation into environmental prediction systems (to include development of tactical decision aids and asset allocation tools), the continued development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies, continued development of improved data fusion techniques, data quality control technologies and accelerate the automation prediction processes, and the development of data assimilation and fusion techniques and technologies for tactical radars, remote sensing and undersea sensor systems.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Littoral Battlespace Sensing, Unmanned Undersea Vehicle (LBS-UUV)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Developed advanced Littoral Battlespace Sensing, Glider (LBS-G) and Littoral Battlespace Sensing, Autonomous Undersea Vehicle (LBS-AUV) data fusion efforts. Demonstrated prototype mission planning and adaptive sampling capability at the Naval Oceanographic Office (NAVOCEANO). Began integration of advanced quality control algorithms as required into the LBS-AUV program as part of its Engineering and Manufacturing Development (EMD) phase. Continued the LBS-AUV EMD Phase.</p>	0.473 0	- -	- -
<p><b>Title:</b> Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Continued advanced component development and prototype efforts associated with advanced data assimilation into environmental prediction systems, to include development of tactical decision aids and asset allocation tools. Continued development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies. Continued development of improved data fusion techniques, data quality control technologies and accelerate the automation of and visualization of prediction processes leading to improved weapon and sensor allocation decisions. Continued to develop data assimilation and fusion techniques and technologies for tactical radars, remote sensing and undersea sensor systems. Continued development of network integration capability and continue to develop systems engineering plans, requirements, standards, studies, and other documentation supporting integration of these products. Continued development of advanced data assimilation and data quality control algorithms for glider and Autonomous Undersea Vehicles (AUVs) data including, temperature, depth, salinity, optics, hydrographic, bathymetric and other water column and ocean bottom properties.</p> <p><b>FY 2012 Plans:</b> Continue advanced component development and prototype efforts associated with advanced data assimilation into environmental prediction systems, to include development of tactical decision aids and asset allocation tools. Continue development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies. Continue development of improved data fusion techniques, data quality control technologies and accelerate the</p>	5.907 0	4.758 0	4.746 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012										
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>		<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>								
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>												
automation of prediction processes. Continue to develop data assimilation and fusion techniques and technologies for tactical sensors, remote sensing and undersea sensor systems. Continue to develop Meteorological & Oceanographic (METOC) and Geospatial Information & Services (GI&S) fusion algorithms and demonstrate reach-back fusion capability.												
<b>FY 2013 Plans:</b> Continue development of advanced oceanographic and atmospheric prediction systems and architectures to provide improved forecasts and estimates of product accuracies. Continue development of improved data fusion techniques, data quality control technologies and accelerate the automation of prediction processes using data from tactical sensors, remote sensing and undersea sensor systems. Continue to develop METOC and GI&S fusion algorithms and demonstrate reach-back capability.												
<b>Title:</b> Meteorological and Oceanographic (METOC) Space-Based Sensing Capabilities												
<b>Articles:</b>												
<table border="0" style="width: 100%;"> <tr> <td style="width: 75%;"></td> <td style="text-align: right;">4.790</td> <td style="text-align: right;">2.787</td> <td style="text-align: right;">3.264</td> </tr> <tr> <td></td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> </tr> </table>						4.790	2.787	3.264		0	0	0
	4.790	2.787	3.264									
	0	0	0									
<b>FY 2011 Accomplishments:</b> Began development of the satellite data assimilation algorithms using National Polar Orbiting Operational Environmental Satellite System Preparatory Project (NPP) data. Continued development of techniques for the assimilation of data from current and future civil, military and international earth observing systems. Continued research and development of data assimilation processes and advanced modeling techniques for ingesting satellite sensor data.												
<b>FY 2012 Plans:</b> Continue development of the data processing and data assimilation algorithms using NPP, Meteorological Operational satellite program (MetOp), and Defense Meteorological Satellite Program (DMSP) satellite data. Continue development of techniques for the assimilation of data from current and future civil, military and international earth observing systems. Conduct research and development of data processing techniques, data assimilation processes and advanced modeling methodologies utilizing satellite sensor data to generate METOC products. Prepare to utilize data from follow-on DoD Satellites to develop METOC products.												
<b>FY 2013 Plans:</b> Continue research and development of data processing and data assimilation algorithms utilizing NPP, MetOp, and DMSP satellite data. Begin assimilation of Meteorological satellite data from other Federal non-DOD, commercial, and foreign earth observing satellite systems. Prepare to ingest data from Joint Polar Satellite System (JPSS) and Defense Weather Satellite System (DWSS) program satellites.												
<b>Title:</b> Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)												
<b>Articles:</b>												
<table border="0" style="width: 100%;"> <tr> <td style="width: 75%;"></td> <td style="text-align: right;">3.580</td> <td style="text-align: right;">3.091</td> <td style="text-align: right;">3.117</td> </tr> <tr> <td></td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> <td style="text-align: right;">0</td> </tr> </table>						3.580	3.091	3.117		0	0	0
	3.580	3.091	3.117									
	0	0	0									
<b>FY 2011 Accomplishments:</b> Continued to develop decision tool mission planning modules to optimize deployment of both environmental data collection assets and tactical Undersea Warfare (USW) acoustic and non-acoustic sensors. Continued to refine and validate USW-												

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>related performance assessment and decision products for use at the Naval Oceanographic Office's (NAVOCEANO's) Anti-Submarine Warfare Reachback Cell (ASW RBC) and in USW decision tools. Continued spiral development of active and passive acoustic propagation loss models for use in fleet mission planning systems supporting mono- and multistatic USW operations. Continued technology upgrades to transmission loss acceleration algorithms. Continued to develop algorithms that characterize acoustic loss/scatter functions as observed by active tactical sonar systems. Developed sea surface and seabed boundary interaction characterizations to support sensor performance predictions. Expanded capabilities and increased access speed of acoustic surface scattering and loss modules. Continued to develop directional and omnidirectional regional ambient noise characterization and forecasting tools. Continued to populate/upgrade oceanographic and acoustic databases in Combatant Commanders' (COCOM) areas of interest. Continued to transition algorithms that capture and communicate variability and uncertainty, robustness and sensitivity as input to Fleet ASW decision tools and underlying models and data bases. Developed an ASW RBC ocean model assessment toolkit. Developed post-USW event Reconstruction and Analysis (R&amp;A) validation tools and capabilities. Began capability upgrades and validation of electro-optic performance prediction systems.</p> <p><b>FY 2012 Plans:</b> Continue visualization and decision tool development that assist USW warfighters to optimally deploy assets equipped with both acoustic and non-acoustic sensors and to take advantage of prevailing environmental conditions. Continue to refine and validate USW-related performance surface and decision products for use afloat and at reachback cells to determine appropriate tactical Courses of Action (COAs) in ASW. Continue population/upgrade of oceanographic, acoustic and geoacoustic databases in COCOM areas of interest. Transition algorithms that capture and communicate variability and uncertainty contained in the output of underlying model and data base components of ASW Tactical Decision Aids (TDAs.) Expand capabilities and increase access speed of acoustic surface scattering and loss modules. Populate/upgrade oceanographic and acoustic databases in COCOM areas of interest. Continue development of an ASW RBC ocean model assessment toolkit. Develop methodologies that characterize and forecast bioacoustic volume attenuation and scatter functions as observed by the Navy's active hull-mounted sonar systems. Develop and transition the environmental components of Mine Warfare (MIW) TDAs in use by the U.S. Navy's MIW Forces and Naval Oceanography enterprise (NOe) personnel supporting them. Document autonomous underwater vehicle (AUV) technology demonstrations that measure in-situ geoacoustic data. Deliver a prototype bottom backscatter database to NAVOCEANO. Provide technical support to NAVOCEANO in updating bottom loss data bases for sonar performance predictions.</p> <p><b>FY 2013 Plans:</b> Continue decision tool development that assist USW warfighters to optimally deploy assets equipped with acoustic sensors and to take advantage of prevailing environmental conditions. Continue to refine and validate USW-related performance surface and decision products for use afloat and at reachback cells to determine appropriate tactical Courses of Action (COAs) in ASW. Continue population/upgrade of oceanographic, acoustic and geoacoustic databases in COCOM areas of interest. Transition algorithms that capture and communicate variability and uncertainty contained in the output of underlying model and data base components of ASW TDAs. Expand capabilities and increase access speed of acoustic surface scattering and loss</p>			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
modules. Continue development of an ASW RBC ocean model assessment toolkit. Continue development of methodologies that characterize and forecast bioacoustic volume attenuation and scatter functions as observed by the Navy's active hull-mounted sonar systems. Continue to develop and transition the environmental components of MIW TDAs in use by the U.S. Navy's MIW Forces and NOe personnel supporting them.			
<p><b>Title:</b> Earth System Prediction Capability (ESPC)</p> <p align="right"><b>Articles:</b></p>	-	-	3.000 0
<p><b>FY 2013 Plans:</b></p> <p>The Earth System Prediction Capability (ESPC) program provides a more accurate global ocean and atmospheric forecast system with longer skillful forecast times through integrating and coupling atmosphere, ocean, ice, land and near-space forecast models into a seamless prediction system that reduces errors in the current modeling suite. Additionally it will develop a National common modeling architecture to improve cross-Agency collaboration, and a greatly more efficient computational architecture to allow for real-time operational prediction. In 2013, a common model architecture and standards will be initiated, demonstration plans will be developed, and science workshops and early benchmark testing will be conducted. Long range program goal is advanced skillful forecast (relative to averaged climatology) from the operational capability, currently 7-10 days, to 30 days and longer. Provides the Navy component to match a National R&amp;D initiative across the major U.S. National Operational Prediction Centers at Navy, NOAA, and DOE</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	14.750	10.636	14.127

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/4226: <i>METEOROLOGICAL EQUIPMENT</i>	25.442	30.278	18.339	0.000	18.339	20.154	20.831	20.528	20.926	Continuing	Continuing
• RDTEN/0604218N/2345: <i>FLEET METOC EQUIPMENT</i>	3.987	4.436	2.615	0.000	2.615	2.751	2.865	2.821	2.872	Continuing	Continuing
• RDTEN/0603207N/2341: <i>METOC DATA ACQUISITION</i>	14.719	6.073	6.702	0.000	6.702	6.724	6.886	6.845	6.958	Continuing	Continuing
• RDTEN/0604218N/2346: <i>METOC SENSOR ENGINEERING</i>	1.509	1.486	1.445	0.000	1.445	1.490	1.506	1.517	1.543	Continuing	Continuing
• RDTEN/0305160N/0524: <i>NAVY METOC SUPPORT (SPACE)</i>	0.851	0.904	0.810	0.000	0.810	0.829	0.876	0.887	0.902	Continuing	Continuing

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>

**D. Acquisition Strategy**

Acquisition, management and contracting strategies to support the METOC Data Assimilation Project which is a multi-faceted program which includes: 1) development, demonstration and validation of atmospheric and oceanographic data assimilation techniques, forecast models, database management systems, and associated software for use in both mainframe and tactical scale computers; 2) other models, which focus on ocean thermal structure and circulation, and surf and tide prediction; 3) techniques to process and manage satellite remotely-sensed environmental data at Oceanography Centers ashore and on ships equipped with the AN/SMQ-11 satellite receiver/recorder; and, 4) a family of acoustic system performance models beginning with active system models and databases in the low-, mid-, and high-frequency regimes and culminating with high fidelity simulation products.

**E. Performance Metrics**

Goal: Develop techniques and tools to assimilate meteorological and oceanographic (METOC) data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models. Data assimilation is expanded to include new in-situ and remotely-sensed data types, based on operational need. Tasks are directed toward advanced techniques enabling assimilation of disparate sources on non-synoptic time scales. Acoustic, atmospheric, and oceanographic model development, prototyping and transition is focused on improved model physics, increased resolution, and computational efficiency.

Metric: Tasks will address no less than 75% of applicable capability gaps and requirements.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	WR	NRL:Washington DC	108.619	4.644	Oct 2011	4.646	Oct 2012	-		4.646	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	WR	SSCs:California, South Carolina	2.272	-		-		-		-	Continuing	Continuing	Continuing
METOC Future Mission Capabilities	Various	Various:Various	41.183	-		-		-		0.000	41.183		
METOC Future Mission Capabilities	C/FP	Univ. S. Miss.:Mississippi	2.413	-		-		-		0.000	2.413		
METOC Space-Based Sensing Capabilities	WR	NRL:Washington, DC	4.608	2.445	Oct 2011	2.939	Oct 2012	-		2.939	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	WR	NRL:Washington, DC	2.130	1.851	Oct 2011	1.786	Oct 2012	-		1.786	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	C/FP	University of Texas:TX	0.700	0.598	Dec 2011	0.693	Dec 2012	-		0.693	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	WR	NSWC Carderock:West Bethesda, MD	0.450	0.399	Oct 2011	0.383	Oct 2012	-		0.383	Continuing	Continuing	Continuing
Tactical Oceanography Capabilities / Undersea Warfare	WR	NAVOCEANO:Mississippi	0.300	0.249	Oct 2011	0.255	Oct 2012	-		0.255	Continuing	Continuing	Continuing
Earth Systems Prediction Capability (SPAWAR)	WR	NRL:Washington DC	-	-		-		-		-	Continuing	Continuing	Continuing
Earth Systems Prediction Capability (ONR)	WR	NRL:Washington DC	-	-		2.100	Oct 2012	-		2.100	Continuing	Continuing	Continuing
ESPC	Various	Various:Various	-	-		0.900	Oct 2012	-		0.900	Continuing	Continuing	Continuing
<b>Subtotal</b>			162.675	10.186		13.702		-		13.702			



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
METOC Future Mission Capabilities	C/CPIF	SSA/CSC:MISC	0.295	-		-		-		-	0.000	0.295		
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	SAIC:Virgina	0.473	-		-		-		-	0.000	0.473		
METOC Future Mission Capabilities	C/FP	SAIC:Virgina	0.200	0.150	Nov 2011	0.100	Nov 2012	-		0.100	Continuing	Continuing	Continuing	
<b>Subtotal</b>			0.968	0.150		0.100		-		0.100				

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Acquisition Workforce	Various	Not Specified:Not Specified	0.090	-		-		-		-	0.000	0.090		
METOC Space-Based Sensing Capabilities	C/FP	BAH:Virgina	0.400	0.300	Nov 2011	0.325	Nov 2012	-		0.325	Continuing	Continuing	Continuing	
<b>Subtotal</b>			0.490	0.300		0.325		-		0.325				

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			164.133	10.636		14.127		-		14.127			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

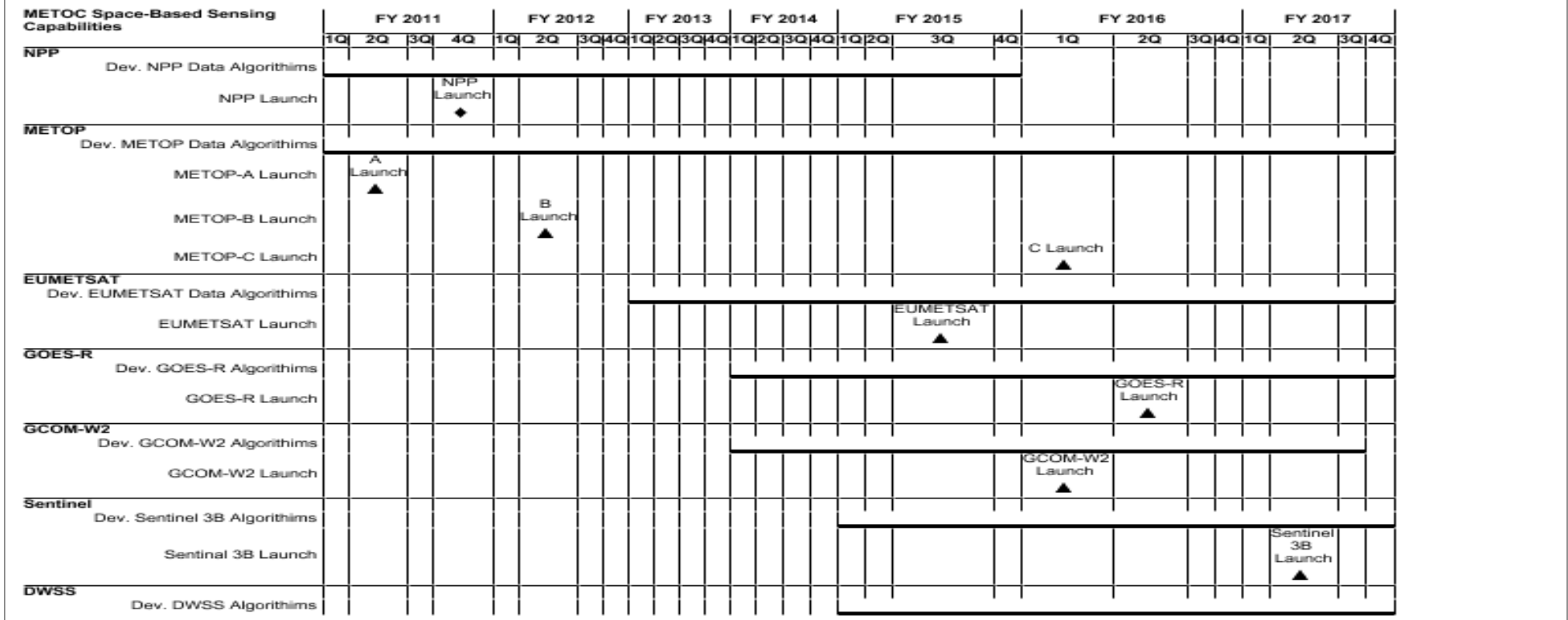
METOC Future Mission Capabilities (FMC)	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017																	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q														
<b>METOC FMC</b>																																										
Data Assimilation Into Environmental Prediction Systems																																										
Develop Oceanographic and Atmospheric Forecast Models																																										
Oceanographic and Atmospheric Forecast Model Data Assimilation																																										
Demonstrate TEP Reachback Fusion Capability																																										
Oceanographic and Atmospheric Forecast Model Network Integration																																										

2013PB - 0603207N - 2342.L39

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---



2013PB - 0603207N - 2342.L39

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017									
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q						
<b>Asset Allocation &amp; Mission Planning</b>																																		
ASW TDA deliveries																																		
TDA deliveries					TDA 1 ▲									TDA 2 ▲					TDA 3 ▲															
RBC deliveries									RBC 1 ▲									RBC 2 ▲																
<b>Acoustic Performance Surface Toolset</b>																																		
Page/Group/Row																																		
Acoustic Performance Surface Toolset v2					Toolset v2 ▲																													
NEXGEN Stochastic Bond Tier II/III Acoustic Toolsets									Toolset 1 ▲									Toolset 2 ▲									Toolset 3 ▲							
<b>Acoustic Model Upgrades</b>																																		
CASS/ASPM/NSPE Upgrades	1 ▲					2 ▲					3 ▲	4 ▲					5 ▲	6 ▲					7 ▲											
<b>Descriptive Dynamic Oceanography Assessment Tool</b>																																		
ARCOAS Deliveries					3 ▲					4 ▲	5 ▲																							
<b>STAPLE Upgrades</b>																																		
Boundary Interaction Algorithms					5 ▲					6 ▲	7 ▲					8 ▲					9 ▲	10 ▲					11 ▲							
SESSS	▲									TOTLOSS					Delivery																			

2013PB - 0603207N - 2342.L39

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

TOC/USW (Cont.)	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>ASW R&amp;A</b>																												
NOe ASW Product V&V																												
Ambient Noise Characterization																												
AN Archive																												
AN GIS Forecast Tool																												
Bottom Backscatter Database																												
Bioacoustic Volume Attenuation and Scatter Effors																												
SME Support to NAVOCEANO Bottom Loss Database Upgrades																												
MIW TDA Support																												
Medal METOC Capability																												
DPMA builds																												

2013PB - 0603207N - 2342.L39

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>METOC Future Mission Capabilities (FMC)</i></b>				
ESPC Coupled Data Assimilation into Environmental Prediction:	1	2013	4	2017
METOC FMC: Data Assimilation Into Environmental Prediction Systems:	1	2011	4	2017
ESPC Development Global Coupled Environmental Models:	1	2013	4	2017
METOC FMC: Develop Oceanographic and Atmospheric Forecast Models:	1	2011	4	2017
ESPC Advanced Computational Architectures:	1	2014	4	2017
METOC FMC: Oceanographic and Atmospheric Forecast Model Data Assimilation:	1	2011	4	2014
ESPC Demonstrate Extended Range Prediction:	1	2014	4	2017
METOC FMC: Demonstrate TEP Reachback Fusion Capability:	1	2014	4	2016
METOC FMC: Oceanographic and Atmospheric Forecast Model Network Integration:	1	2011	4	2011
<b><i>METOC Space-Based Sensing Capabilities</i></b>				
NPP: Dev. NPP Data Algorithms:	1	2011	4	2015
NPP: NPP Launch:	4	2011	4	2011
METOP: Dev. METOP Data Algorithms:	1	2011	4	2017
METOP: METOP-A Launch:	2	2011	2	2011
METOP: METOP-B Launch:	2	2012	2	2012
METOP: METOP-C Launch:	1	2016	1	2016
EUMETSAT: Dev. EUMETSAT Data Algorithms:	1	2013	4	2017
EUMETSAT: EUMETSAT Launch:	3	2015	3	2015
GOES-R: Dev. GOES-R Algorithms:	1	2014	4	2017
GOES-R: GOES-R Launch:	2	2016	2	2016
GCOM-W2: Dev. GCOM-W2 Algorithms:	1	2014	3	2017

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
GCOM-W2: GCOM-W2 Launch:	1	2016	1	2016
Sentinel: Dev. Sentinel 3B Algorithms:	1	2015	4	2017
Sentinel: Sentinel 3B Launch:	2	2017	2	2017
DWSS: Dev. DWSS Algorithms:	1	2015	4	2017
<b><i>Tactical Oceanographic Capabilities (TOC) / Undersea Warfare (USW)</i></b>				
Asset Allocation & Mission Planning: ASW TDA deliveries:	1	2011	4	2016
Asset Allocation & Mission Planning: TDA deliveries: ASW TDA Delivery 1	1	2012	1	2012
Asset Allocation & Mission Planning: TDA deliveries: ASW TDA Delivery 2	4	2014	4	2014
Asset Allocation & Mission Planning: TDA deliveries: ASW TDA Delivery 3	2	2016	2	2016
Asset Allocation & Mission Planning: RBC deliveries: ASW RBC Delivery 1	3	2013	3	2013
Asset Allocation & Mission Planning: RBC deliveries: ASW RBC Delivery 2	2	2015	2	2015
Acoustic Performance Surface Toolset: Page/Group/Row:	1	2011	4	2017
Acoustic Performance Surface Toolset: Acoustic Performance Surface Toolset v2:	4	2011	4	2011
Acoustic Performance Surface Toolset: NEXGEN Stochastic Bond Tier II/III Acoustic Toolsets: NEXGEN Stochastic Bond Tier II/III Acoustic Toolset 1	3	2013	3	2013
Acoustic Performance Surface Toolset: NEXGEN Stochastic Bond Tier II/III Acoustic Toolsets: NEXGEN Stochastic Bond Tier II/III Acoustic Toolset 2	3	2015	3	2015
Acoustic Performance Surface Toolset: NEXGEN Stochastic Bond Tier II/III Acoustic Toolsets: NEXGEN Stochastic Bond Tier II/III Acoustic Toolset 3	3	2017	3	2017
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades:	1	2011	4	2017
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 1	1	2011	1	2011
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 2	2	2012	2	2012
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 3	4	2013	4	2013

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 4	3	2014	3	2014
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 5	2	2015	2	2015
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 6	1	2016	1	2016
Acoustic Model Upgrades: CASS/ASPM/NSPE Upgrades: CASS/ASPM/NSPE Upgrade 7	4	2017	4	2017
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries:	1	2011	4	2013
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: ARCOAS Delivery 3	4	2011	4	2011
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: ARCOAS Delivery 4	4	2012	4	2012
Descriptive Dynamic Oceanography Assessment Tool: ARCOAS Deliveries: ARCOAS Delivery 5	4	2013	4	2013
STAPLE Upgrades:	1	2011	4	2017
STAPLE Upgrades: STAPLE Delivery 5	4	2011	4	2011
STAPLE Upgrades: STAPLE Delivery 6	4	2012	4	2012
STAPLE Upgrades: STAPLE Delivery 7	4	2013	4	2013
STAPLE Upgrades: STAPLE Delivery 8	4	2014	4	2014
STAPLE Upgrades: STAPLE Delivery 9	4	2015	4	2015
STAPLE Upgrades: STAPLE Delivery 10	4	2016	4	2016
STAPLE Upgrades: STAPLE Delivery 11	4	2017	4	2017
Boundary Interaction Algorithms:	1	2011	4	2014
Boundary Interaction Algorithms: SESSS Algorithm Upgrade	2	2011	2	2011
Boundary Interaction Algorithms: TOTLOSS Algorithm	4	2012	4	2012
Boundary Interaction Algorithms: TOTLOSS/SCATTER Algorithm Delivery	4	2014	4	2014



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>TOC/USW (Cont.)</b>				
ASW R&A: NOe ASW Product V&V:	1	2011	4	2011
ASW R&A: NOe ASW Product V&V: NOe ASW Product V&V	4	2011	4	2011
ASW R&A: Ambient Noise Characterization:	1	2011	4	2011
ASW R&A: AN Archive:	4	2011	4	2011
ASW R&A: AN GIS Forecast Tool:	3	2011	3	2011
ASW R&A: Bottom Backscatter Database:	1	2011	4	2011
ASW R&A: Bottom Backscatter Database: NAVOCEANO Delivery	3	2011	3	2011
ASW R&A: Bioacoustic Volume Attenuation and Scatter Effors:	1	2011	4	2017
ASW R&A: Bioacoustic Volume Attenuation and Scatter Effors: Documentation Delivery	3	2012	3	2012
ASW R&A: Bioacoustic Volume Attenuation and Scatter Effors: VSS Database Upgrade 1	4	2014	4	2014
ASW R&A: Bioacoustic Volume Attenuation and Scatter Effors: VSS Database Upgrade 2	4	2016	4	2016
ASW R&A: Bioacoustic Volume Attenuation and Scatter Effors: Bioacoustic Forecast Capability 1	4	2015	4	2015
ASW R&A: Bioacoustic Volume Attenuation and Scatter Effors: Bioacoustic Forecast Capability 2	4	2017	4	2017
SME Support to NAVOCEANO Bottom Loss Database Upgrades:	1	2011	4	2012
SME Support to NAVOCEANO Bottom Loss Database Upgrades: HFBL Low Grazing Angle	4	2011	4	2011
SME Support to NAVOCEANO Bottom Loss Database Upgrades: HFBL Horizontal Variability	4	2012	4	2012
MIW TDA Support: Medal METOC Capability:	1	2011	4	2016
MIW TDA Support: Medal METOC Capability: MEDAL METOC Capability 1	3	2011	3	2011
MIW TDA Support: Medal METOC Capability: MEDAL METOC Capability 2	4	2012	4	2012

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2342.: <i>METOC Data Assimilation and Mod</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MIW TDA Support: Medal METOC Capability: MEDAL METOC Capability 3	3	2013	3	2013
MIW TDA Support: Medal METOC Capability: MEDAL METOC Capability 4	4	2014	4	2014
MIW TDA Support: Medal METOC Capability: MEDAL METOC Capability 5	3	2015	3	2015
MIW TDA Support: Medal METOC Capability: MEDAL METOC Capability 6	4	2016	4	2016
MIW TDA Support: DPMA builds: DPMA Build 3	2	2011	2	2011
MIW TDA Support: DPMA builds: DPMA Build 4	3	2012	3	2012
MIW TDA Support: DPMA builds: DPMA Build 5	4	2013	4	2016

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>					<b>PROJECT</b>			
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0603207N: <i>Air/Ocean Tactical Applications</i>					2343: <i>Tactical METOC Applications</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2343: <i>Tactical METOC Applications</i>	12.226	9.562	9.172	-	9.172	5.453	13.960	19.509	16.231	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Tactical Meteorological and oceanographic (METOC) Applications Project provides future operational effects decision aid capabilities for Navy and Marine Corps warfighters in the context of Joint Operations in a net-centric environment. This project identifies and transitions state-of-the-art decision support software technologies from the government's and commercial Industry's technology base and then demonstrates and validates these capabilities before fielding. These software decision support tools provide platform, sensor, communications, and weapon systems performance assessments for warfighters in terms of their littoral and deep-strike battlespace environments. These assessments allow mission planners and warfighters, from the unit to theater level, to optimize their sensor employment on airborne, surface, and subsurface platforms in support of all Naval Composite Warfare mission areas including Undersea Warfare (USW), Anti-Submarine Warfare (ASW), Mine Warfare, Amphibious Warfare (AMW), Anti-Surface Warfare (ASUW), Anti-Air Warfare (AAW), Strike Warfare (STW), and Naval Special Warfare (NSW). Performance assessments leading to improvements in operational and tactical control are conducted through a two-tiered approach: 1) METOC Decision Aids (MDAs) and, 2) Operational Effects Decision Aids (OEDAs). MDAs consist of a series of analysis tools which characterize the physical environment conditions of the battlespace based on the best set of physical environment data available at the time (i.e., some combination of historical and/or real-time (or near real-time) in-situ, and numerically modeled forecast data). OEDAs then use the MDA information by fusing it with relevant, often-classified sensor and target data to predict how own-force weapons and sensor systems will perform against hostile targets. Performance results are displayed in tabular and graphic formats integrated into net-centric visualization tools for use by mission planners and combat/weapon system operators to develop localization plans, USW/AAW/ASUW screens, STW profiles, AMW ingress and egress points, and for other warfare considerations. MDAs and OEDAs typically use data derived from sensors developed in Project 2341 (METOC Data Acquisition) and assimilated by software produced by Project 2342 (METOC Data Assimilation and Modeling). MDAs and OEDAs also use data obtained through direct interfaces to Navy combat systems. A current emphasis area of the project is capabilities required to characterize and/or predict sensor and weapons system performance in the highly complex littoral environments in support of regional conflict scenarios. It addresses multi-warfare areas, particularly shallow water ASW, NSW, and missile and air defense/strike capabilities.

The major emphasis of this project is the software only Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program of record.

FY 2013 request provides for the continuation of NITES-Next Release 1 software development efforts including extensive system architecture, and testing efforts.

Beginning in FY14 the Navy has resumed all Naval Integrated Tactical Environmental System Next Generation (NITES-Next) program development efforts.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Naval Integrated Tactical Environmental System Next Generation (NITES-Next)	12.226	9.562	9.172
<b>Articles:</b>	0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>		<b>PROJECT</b> 2343: <i>Tactical METOC Applications</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b><i>FY 2011 Accomplishments:</i></b> Continued the development of NITES-Next Release 1 (R1) system architecture, system engineering, and software, including integration with next generation Electromagnetic and Electro-optical (EM/EO) and performance prediction systems. Conducted NITES-Next Release 1 Preliminary Design Review (PDR) involving lab, fleet and site testing and early Commander, Operational Test &amp; Evaluation Force (COMOPTEVFOR) involvement.</p> <p><b><i>FY 2012 Plans:</i></b> Continue software Engineering and Manufacturing Development (EMD) efforts for NITES-Next R1. Conduct NITES-Next R1 Critical Design Review (CDR). Continue the development of NITES-Next R1 system design including the software architecture design. Begin NITES-Next R1 software development phase. Begin preparation for all Test Readiness Reviews (TRR), Developmental Test and Evaluation (DT&amp;E), and Initial Operational Test and Evaluation (IOT&amp;E) efforts scheduled for FY 2013. Begin preparations for the award of the NITES-Next Release 2 contract option. Begin R1 contractor developmental test and evaluation activities.</p> <p><b><i>FY 2013 Plans:</i></b> Continue software EMD efforts for NITES-Next R1. Continue NITES-Next R1 developmental system test activities in preparation for Milestone C. Conduct R1 TRR, DT&amp;E, IOT&amp;E and Software Verification Review. Conduct preparations for the deployment, fielding and sustainment of R1. Conduct preparations for both the award of the NITES-Next Release 2 (R2) contract option and the R2 software requirements development phase. Conduct preparations for NITES-Next Milestone C.</p>					
<b>Accomplishments/Planned Programs Subtotals</b>			12.226	9.562	9.172
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					
<b>D. Acquisition Strategy</b>					
Acquisition, management and contracting strategies are to support the Tactical METOC Applications project to continue the development of state-of-the-art software capabilities that provide sensor, communication, and weapon system performance assessments across the full spectrum of open ocean and littoral operating environments, meteorology and oceanography , all with management oversight incorporating these into the Naval Integrated Tactical Environmental System Next Generation program under Joint Capabilities Integration and Development System (JCIDS) by the Department of the Navy (DoN).					
<b>E. Performance Metrics</b>					
Goal: Develop meteorological and oceanographic (METOC) future operational effects decision aid capabilities for Navy and Marine Corps war fighters in order to facilitate the characterization and prediction of the entire battle space.					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2343: <i>Tactical METOC Applications</i>
Metric: Improve the accuracy of meteorological and oceanographic tactical decision aids and applications in order to address no less than 75% of applicable capability gaps and requirements.		

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2343: <i>Tactical METOC Applications</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	WR	NRL:Washington, DC	3.893	-		-		-		-	0.000	3.893	
NITES/NITES-Next	WR	SSCs:California, South Carolina	8.673	-		-		-		-	Continuing	Continuing	Continuing
NITES/NITES-Next	Various	Various:Various	5.775	-		-		-		-	0.000	5.775	
NITES	Various	Various:Various	61.400	-		-		-		-	0.000	61.400	
NITES-Next	C/CPIF	GD-IT:Virginia	25.551	7.387	Nov 2011	7.245	Nov 2012	-		7.245	Continuing	Continuing	Continuing
NITES-Next	WR	NAVOCEANO:Mississippi	0.125	0.125	Oct 2011	0.200	Oct 2012	-		0.200	Continuing	Continuing	Continuing
NITES-Next	WR	SSC Pacific:San Diego, CA	-	0.700	Oct 2011	0.491	Oct 2012	-		0.491	0.000	1.191	
<b>Subtotal</b>			105.417	8.212		7.936		-		7.936			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Support Cost	C/CPIF	IPD:Various	0.595	-		-		-		-	0.000	0.595	
NITES-Next	C/FP	SAIC:Virgina	1.600	0.950	Nov 2011	0.878	Nov 2012	-		0.878	Continuing	Continuing	Continuing
NITES-Next	C/FP	NAVAIR:Maryland	0.125	-		-		-		-	0.000	0.125	
<b>Subtotal</b>			2.320	0.950		0.878		-		0.878			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Acquisition Workforce	Various	Various:Various	0.031	-		-		-		-	0.000	0.031	
NITES-Next	WR	SSC Pacific:San Diego, CA	-	0.100	Oct 2011	0.100	Oct 2012	-		0.100	Continuing	Continuing	Continuing
NITES-Next	C/FP	BAH:Virgina	0.400	0.300	Nov 2011	0.258	Nov 2012	-		0.258	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.431	0.400		0.358		-		0.358			

**UNCLASSIFIED**

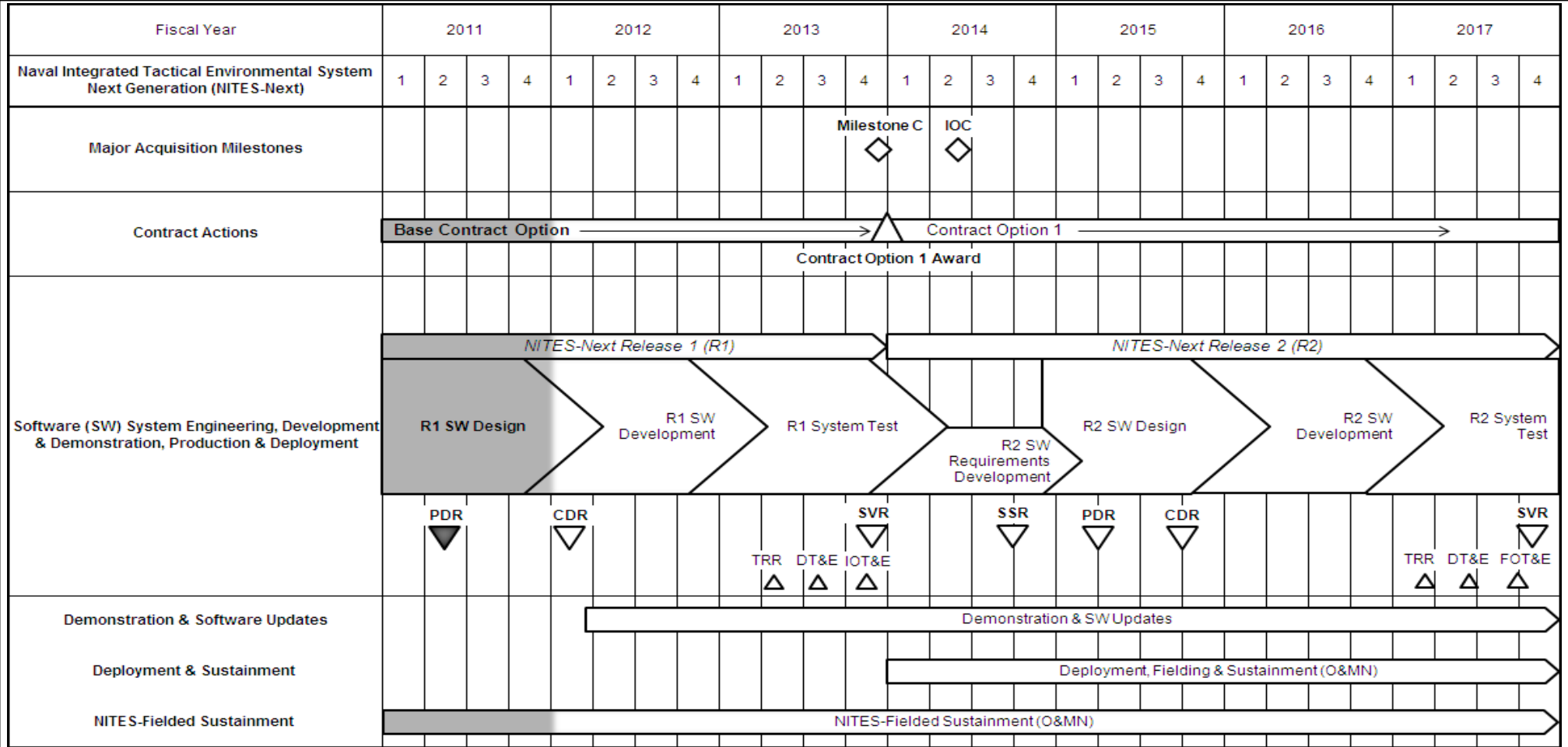
<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>				<b>PROJECT</b> 2343: <i>Tactical METOC Applications</i>				
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	108.168	9.562		9.172		-		9.172			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2343: <i>Tactical METOC Applications</i>
---	---	--



**Acronyms:** PDR = Preliminary Design Review. CDR = Critical Design Review. TRR = Test Readiness Review. DT&E = Developmental Test & Evaluation. IOT&E = Initial Operational Test & Evaluation. SVR = Software Verification Review. SSR = Software Specification Review. FOT&E = Follow-on Operational Test and Evaluation.



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2343: <i>Tactical METOC Applications</i>
---	---	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Naval Integrated Tactical Environmental System Next Generation (NITES-Next)</i></b>				
Milestones: MS C	4	2013	4	2013
Milestones: IOC	2	2014	2	2014
Contract Actions: Base Option	1	2011	4	2013
Contract Actions: Contract Option 1 Award	4	2013	4	2013
Contract Actions: Option 1	1	2014	4	2017
System Engineering Phase: SW Design 0001	1	2011	4	2011
System Engineering Phase: SW Development 0001	1	2012	4	2012
System Engineering Phase: System Test 0001	4	2012	4	2013
System Engineering Phase: SW Requirments 0101	1	2014	3	2014
System Engineering Phase: Software Design 0101	4	2014	3	2015
System Engineering Phase: SW Development 0101	4	2015	3	2016
System Engineering Phase: System Test 0101	4	2016	3	2017
System Development & Demonstration, Production & Deployment: Software Release 1:	1	2011	4	2013
System Development & Demonstration, Production & Deployment: Software Release 1: Release 1: Production Design Review (PDR)	2	2011	2	2011
System Development & Demonstration, Production & Deployment: Software Release 1: Release 1: Critical Design Review (CDR)	1	2012	1	2012
System Development & Demonstration, Production & Deployment: Software Release 1: Release 1: Technical Readiness Review (TRR)	2	2013	2	2013
System Development & Demonstration, Production & Deployment: Software Release 1: Release 1: Development, Test, & Eval (DT&E)	3	2013	3	2013

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2343: <i>Tactical METOC Applications</i>
---	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
System Development & Demonstration, Production & Deployment: Software Release 1: Release 1: IOT&E	4	2013	4	2013
System Development & Demonstration, Production & Deployment: Software Release 1: Release 1: SVR	4	2013	4	2013
System Development & Demonstration, Production & Deployment: Software Release 2:	1	2014	4	2017
System Development & Demonstration, Production & Deployment: Software Release 2: Release 2: SRR	3	2014	3	2014
System Development & Demonstration, Production & Deployment: Software Release 2: Release 2: Production Design Review (PDR)	1	2015	1	2015
System Development & Demonstration, Production & Deployment: Software Release 2: Release 2: Critical Design Review (CDR)	3	2015	3	2015
System Development & Demonstration, Production & Deployment: Software Release 2: Release 2: Technical Readiness Review (TRR)	1	2017	1	2017
System Development & Demonstration, Production & Deployment: Software Release 2: Release 2: Development, Test, & Eval (DT&E)	2	2017	2	2017
System Development & Demonstration, Production & Deployment: Software Release 2: Release 2: FOT&E	3	2017	3	2017
System Development & Demonstration, Production & Deployment: Software Release 2: Release 2: SVR	4	2017	4	2017
Optional CLINs: Demostration & Software Updates Optional (R&D):	1	2012	4	2017
Optional CLINs: Deployment, Fielding & Sustainment Optional (OMN):	1	2014	4	2017
Optional CLINs: Sustainment Optional CLINs (OMN):	1	2011	4	2017

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>				<b>PROJECT</b> 2344.: <i>Precise Timing and Astronomy</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2344.: <i>Precise Timing and Astronomy</i>	1.973	1.025	3.043	-	3.043	2.814	1.923	1.382	0.999	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The major thrust of the Precise Timing and Astrometry Project is to provide future capabilities that directly support the mission of the U.S. Naval Observatory (USNO). These future mission capabilities are intended to:

- 1) address DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions (including objects at other than optical wavelengths) and the stellar inertial reference system (to which all navigation, guidance, and positioning systems are ultimately referred);
  - 2) develop techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system;
  - 3) oversee the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and,
  - 4) develop advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies.
- DoD Instruction 5000.2 assigns to the Navy the responsibility for coordinating Precise Time and Time Interval (PTTI) requirements and for maintaining a PTTI reference standard (astronomical and atomic) for use by all DoD Services, Federal agencies, and related scientific laboratories. The Navy is also responsible for providing astronomical data for navigation, positioning, and guidance, including space. Some operational and many emerging requirements surpass current support capabilities.

In response to these DoD requirements, this project transitions Research and Exploratory Development efforts, as well as developments in the civilian sector, into the operational capabilities of the USNO.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Precise Timing and Astronomy	-	-	3.043
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Achieve Alternate Master Clock (AMC) Initial Operating Capability (IOC). Complete Full System Capability (FSC) testing and certification of the Rb Fountain MC capability. Complete IOC and Full Operation Capability (FOC) testing of the M-Code Timing receiver. Complete construction and conduct Operational Testing (OT) of the software (SW) correlator.			
Contract awarded for Very Long Base-Line Interferometry (VLBI) Data Acquisitions System at Kokee Park, HI.			
The Precise Timing and Astrometry (PTA) Program will focus on replacement and upgrade of the aging VLBI Data Acquisition System (DAS) at Kokee Park, HI. The system will be converted to the new upgraded international standard (VLBI2010). The Data Acquisition System at Kokee Park, HI is a critical US-based member of an international network of VLBI radio telescopes and			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2344.: <i>Precise Timing and Astronomy</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
associated electronic systems. The VLBI radio telescope data from this telescope is needed for generation of Earth Orientation Parameters and for the Celestial Reference Frame.				
<b>Title:</b> Precision Timing and Astronomy				
		<b>Articles:</b>		
		1.973	1.025	-
		0	0	
<b>FY 2011 Accomplishments:</b> Continued installation and operational testing of the completed Master Clock (MC) systems installation at U.S. Naval Observatory (USNO), DC and achieved Initial Operating Capability (IOC) of MC installation . Continued development of and began production of the Global Positioning System (GPS)-III M-Code Timing Receiver. Continued the development, installation and testing of electronic Very Long Base-Line Interferometry (eVLBI) wide-band data connectivity capability.				
<b>FY 2012 Plans:</b> Transport Rb Fountain Master Clocks (MC) to the United States Naval Observatory (USNO) Alternate Master Clock (AMC) site. Complete IOC of Rb Fountain MC. Conduct Operational Testing (OT) on the first production of GPS M-Code timing receiver. Complete Critical Design Review (CDR) of software (SW) on correlator VLBI Earth Orientation Parameters and demonstrate SW correlator utilizing wide-band internet transmission of VLBI data from all VLBI sites.				
<b>Accomplishments/Planned Programs Subtotals</b>		1.973	1.025	3.043
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>D. Acquisition Strategy</b>				
Acquisition, management and contracting strategies are to support the Precise Timing and Astrometry Project in direct support of the U.S. Naval Observatory in: 1) addressing DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions and the stellar inertial reference system ; 2) developing techniques for the prediction of the Earth's instantaneous orientation with respect to the stellar inertial reference system; 3) overseeing the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks; and, 4) developing advanced electronic light detectors and interferometry in the optical and infrared wavelength regions for very precise determination of the positions of both faint and bright stars, satellite tracking, and space debris studies, all with management oversight by Program Executive Officer for Command, Control, Communications, Computers, and Intelligence.				
<b>E. Performance Metrics</b>				
Goal: Address Navy/DoD requirements for needed increases in positioning accuracies of modern weapons systems by the determination of star positions, oversee the determination and dissemination of precise time information using the Navy/DoD Master Clock System and precise time distribution networks.				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2344.: <i>Precise Timing and Astronomy</i>
Metric: Measurable progress toward stated GPS-III requirement to meet or exceed a 2 sigma accuracy of 0.5 nanoseconds (ns) for the M Code Rx error and 0.1ns Master Clock error. Improve star position accuracy to within 10 milliarcseconds in support of National Technical Means (classified) program requirements.		

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2344.: <i>Precise Timing and Astronomy</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	WR	Naval Observatory: Washington, DC	-	-		3.043	Oct 2012	-		3.043	Continuing	Continuing	Continuing
Product Development	WR	The Naval Observatory: Washington, DC	18.672	1.025	Oct 2011	-		-		-	0.000	19.697	
Precise Timing & Astrometry	Various	Various: Various	19.144	-		-		-		-	0.000	19.144	
<b>Subtotal</b>			37.816	1.025		3.043		-		3.043			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Acquisition Workforce	Various	Various: Various	0.099	-		-		-		-	0.000	0.099	
<b>Subtotal</b>			0.099	-		-		-		-	0.000	0.099	

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>		<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			37.915	1.025		3.043		-		3.043				

**Remarks**

---

### UNCLASSIFIED

**Exhibit R-4, RDT&E Schedule Profile:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2344.: <i>Precise Timing and Astronomy</i>
---	---	--

Precise Timing and Astronomy (PTA)	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
<b>Master Clock System</b>				Rb IOC MS C ▲	IOC MC C ▲							IOC Rb AMC ▲									Design Prototype ▲				Dev. Laser ▲				Demo Prototype ▲			
<b>GPS M-Code Receiver</b>				PDR ▲	CDR ▲							IOC ▲					FOC ▲															
<b>Electronic Very Long Base-Line (eVLBL) / Software Correlator</b>																																
	WB IOC ▲	WB IOC ▲	SW Correlator PDR ▲				SW Correlator Contract ▲	SW COR CDR ▲				WB VLBI Ops ▲	SW COR FOC ▲																			

2013DON - 0603207N - 2344

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2344.: <i>Precise Timing and Astronomy</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Precise Timing and Astronomy (PTA)</i></b>				
Master Clock System:	1	2011	4	2017
Master Clock System: Rb Initial Operational Capability (IOC) - Milestone C (MC) Start	4	2011	4	2011
Master Clock System: Rb Initial Operational Capability (IOC) - Milestone C (MC) Finish	1	2012	1	2012
Master Clock System: IOC Rb Alternate Master Clock (AMC)	2	2013	2	2013
Master Clock System: Rb & AMC Initial Operational Capability (IOC) - MC	2	2013	2	2013
Master Clock System: Rb & AMC Full Operational Capability (FOC) - MC	4	2013	4	2013
Master Clock System: Design Optical Prototype	4	2014	4	2014
Master Clock System: Develop Laser	2	2015	2	2015
Master Clock System: Demonstrate Optical Prototype	2	2016	2	2016
GPS M-Code Receiver:	1	2011	4	2013
GPS M-Code Receiver: Preliminary Design Review (PDR)	4	2011	4	2011
GPS M-Code Receiver: Critical Design Review (CDR)	2	2012	2	2012
GPS M-Code Receiver: IOC	2	2013	2	2013
GPS M-Code Receiver: FOC	4	2013	4	2013
Electronic Very Long Base-Line (eVLBL) / Software Correlator:	1	2011	4	2013
Electronic Very Long Base-Line (eVLBL) / Software Correlator: Wide Band (WB) IOC Start	2	2011	2	2011
Electronic Very Long Base-Line (eVLBL) / Software Correlator: Wide Band (WB) IOC Finish	3	2011	3	2011
Electronic Very Long Base-Line (eVLBL) / Software Correlator: SW Correlator Preliminary Design Review (PDR)	4	2011	4	2011
Electronic Very Long Base-Line (eVLBL) / Software Correlator: SW Correlator Contract	3	2012	3	2012



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 2344.: <i>Precise Timing and Astronomy</i>
---	---	--

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Electronic Very Long Base-Line (eVLBL) / Software Correlator: Software COR CDR	4	2012	4	2012
Electronic Very Long Base-Line (eVLBL) / Software Correlator: Wide Band (WB) VLBI Ops	4	2012	4	2012
Electronic Very Long Base-Line (eVLBL) / Software Correlator: SW COR FOC	1	2013	1	2013

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3207: <i>Fleet Synthetic Training</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3207: <i>Fleet Synthetic Training</i>	3.311	0.968	1.041	-	1.041	1.065	1.086	1.105	1.124	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Fleet Synthetic Training (FST) provides naval forces with an enhanced in-port training capability. Integrating embedded shipboard training devices, aircraft and submarine simulators into an interoperable network with joint, coalition and interagency partners will provide more effective training for our deploying naval forces.

A key factor in achieving this new way of training our naval forces is to ensure that the required training is based on realistic characterizations of the physical environment. This project develops and delivers software that characterizes the ocean and atmospheric environments; adjusts to meet fleet-required training scenarios; allows synthetic training to be conducted in areas of planned and contingency operations; and, provides sufficient detail to simulate the real-world conditions of the physical environment in those areas of interest.

To support Fleet readiness the Navy has established a persistent training environment. It enables the use of modeling and simulation in support of Fleet Synthetic Training (FST). Navy's Continuous Training Environment (NCTE) satisfies this requirement by providing the infrastructure and connectivity required for distributed simulation-based training, events, and exercises. The Joint Semi-Automated Forces (JSAF) simulation provides the core model for maritime constructive representation and stimulation for Navy Training and Joint Training events.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Navy Training Baseline Fleet Required Capabilities</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> Fleet required capabilities priorities include: 1) Information Operations (IO), 2) Integrated Air and Missile Defense (IAMD), 3) Cross-Domain Solutions (CDS), and 4) Live and Virtual Range Integration.</p> <p>Development efforts to meet priorities 1 through 4 include: Integration of the Navy Information Operations Database (NIODB) into Joint Semi-Automated Forces (JSAF); development of Link-16, Link-11, and Global Command and Control System OTH-GOLD coalition proxies via JBUS; integration of Missile Defense Agency (MDA) threat generation libraries into JSAF, and enhancements to the synthetic command and control capability to manage Link-16 in a tactical training environment.</p> <p>Accomplishments planned include the stability and robustness improvements to support Fleet Synthetic Training. Improved capability of Automated Status Boards and Link 16 Information Display for the Tactical Training Group Schoolhouses. Improved capability of Class III and V Logistics, Theater Battle Management Core Systems mission support interface, and Intel fidelity</p>	<p>1.446</p> <p>0</p>	<p>-</p>	<p>-</p>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>		<b>PROJECT</b> 3207: <i>Fleet Synthetic Training</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
(Electronic Intelligent (ELINT)) in support of Navy requirements. Improved capability in support of virtual and constructive users such as: Manned Flight Systems' H-60R and H-60S trainers.				
<b>FY 2011 Accomplishments:</b>				
<ul style="list-style-type: none"> <li>- Research feasibility of providing live data in support of synthetic training events.</li> <li>- Research implementation of climatology products into Fleet Synthetic Training.</li> <li>- Develop fleet-required capabilities and enhancements to the Navy Continuous Training Environment (NCTE) and Joint Semi-Automated Forces (JSAF) Navy software application baselines.</li> </ul>				
<b>Title:</b> DISA MSPP / MPLS Architecture for Fleet Synthetic Training				
<b>Articles:</b>				
<p><b>Description:</b> Prototype System. Align NCTE with the new DISA MSPP/MPLS architecture and to continue to influence the build-out of that architecture for optimum support of Fleet Synthetic Training (FST). This is a fundamental imperative to providing a seamless transition from current legacy infrastructures to the improved backbone architectures, the migration to which is mandated starting in 2012 by the Assistant Secretary of Defense for C3, Space, and Spectrum.</p> <p>The Navy Training Baseline JSAF and other Virtual and Constructive components will be correlated with Live players, significantly upgrading common ground truth. Intensified terrain is required for every FST AOR, as the NCTE "world thin" terrain will contain areas of high definition for entities to transit through successfully, resulting in increased planning and developing of scenarios to support wargaming. Order of battle change implementation activities are enhanced reducing developer time; FST planners will be able to use the existing Link-16 model in the Navy Training Baseline JSAF and the supporting services in the NCTE to represent Link-11 platform operations; and FST events and Joint and COCOM wargames that require the use of unclass/releasable JSAF can be supported, enhancing Live, Virtual and Constructive operations.</p>				
<b>FY 2011 Accomplishments:</b>				
Accomplishments include the stability and robustness improvements to support Fleet Synthetic Training. Improved capability of Automated Status Boards and Link-16 Information Display for the Tactical Training Group Schoolhouses. Improved capability of Class III and V Logistics, Theater Battle Management Core Systems mission support interface, and Intel fidelity (Electronic Intelligence (ELINT)) in support of Navy requirements. Improved capability in support of virtual and constructive users such as: Manned Flight Systems' H-60R and H-60S trainers.				
<b>Title:</b> Fleet Synthetic Training				
<b>Articles:</b>				
		0.922	-	-
		0		
		0.943	0.968	1.041
		0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3207: <i>Fleet Synthetic Training</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
---	----------------	----------------	----------------

**Description:** Develop and deliver software that characterizes the ocean and atmospheric environments; adjusts to meet fleet-required training scenarios; allows synthetic training to be conducted in areas of planned and contingency operations; and, provides sufficient detail to simulate the real-world conditions of the physical environment in those areas of interest.

Accomplishments include development of meteorological and oceanographic environmental databases for total of 10 of 14 Navy Continuous Training Environment (NCTE) exercise areas. Conducted data and architecture testing between CNMOC data and the Environmental Data Cube Support system. Integrated environmental database hosting at the Naval Oceanographic Office. Developed capability to realistically simulate bathythermograph data collection based on synthetic ocean environment for total of 6 of 14 NCTE areas. Enhanced realism of training environment by providing synthetic satellite/radar imagery based on synthetic environmental data. Made improvements in generating acoustic performance products used by Anti-Submarine Warfare (ASW) white cell and ASW commander staff. Conducted verification and validation of acoustic performance products.

**FY 2011 Accomplishments:**

- \* Completed production of environmental archive data for 4-6 NCTE exercise areas per Navy Warfare Development Command (NWDC) specifications
- \* Increased number of mineable NCTE area
- \* Refined link between claimancy data architecture and architecture for data provision in support of NCTE as required
- \* Continued to automate the process for producing acoustic products in support of FST events
- \* Developed additional synthetic point data and field imagery products (fog ht parameter, synthetic BTs)
- \* Developed fleet-required capabilities and enhancements to Environmental Data Cube Support System (EDCSS) to support white cell operations and METOC TDA use
- \* Conducted study to determine validity of adjusting environmental parameters in order to improve customized scenarios

**FY 2012 Plans:**

- \* Complete mineability of last 6 NCTE areas
- \* Research implementation of automated Tactical Oceanographic Forecast products
- \* Research implementation of additional performance surface capabilities
- \* Continue to improve Environmental Data Cube Support System (EDCSS) interface in support of environmental product generation
- \* Research "model on demand" capability
- \* Develop new products in response to NWDC demand signal
- \* Increase archives (years) as required

<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3207: <i>Fleet Synthetic Training</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
* Conduct studies in support of innovative decision superiority products in response to fleet demand			
<b><i>FY 2013 Plans:</i></b>			
* Implement automated Tactical Oceanographic Forecast products			
* Produce additional performance surface capabilities			
* Continue to improve Environmental Data Cube Support System (EDCSS) interface in support of environmental product generation			
* Research "model on demand" capability			
* Develop new products in response to NWDC demand signal			
* Increase archives (years) as required			
* Conduct studies in support of innovative decision superiority products in response to fleet demand			
<b>Accomplishments/Planned Programs Subtotals</b>	3.311	0.968	1.041

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

N/A

**D. Acquisition Strategy**

The included technology developments are primarily in-house with contractor participation through existing vehicles.

**E. Performance Metrics**

- 1) CNMOC will produce meteorological and oceanographic environmental databases for all Navy Continuous Training Environment (NCTE) exercise areas. Will implement, test, and integrate with JSAF and other federates in accordance with requirements.
- 2) CNMOC will complete data and architecture integration, including information assurance compliance for provision of synthetic METOC data to the NCTE. Data and products will be available via NEP-Oc, DVD and/or M2M during planning and execution of FST events.
- 3) CNMOC will produce Tactical Oceanographic Forecast products and bathythermographic data profiles based on synthetic ocean environment and synthetic satellite/radar imagery based on meteorological environmental data for all NCTE exercise areas. Products are utilized in planning and execution of FST events.
- 4) Navy Warfare Development Command (NWDC) will research and develop the software and associated efforts to include documentation; will design and implement upgrades to Joint Semi-Automated Forces (JSAF) consistent with approved requirements and Change Requests and document the effects of JSAF capabilities (robustness) and stability. Will design, implement, test, and integrate JSAF enhancements in accordance with requirements. NWDC will deliver JSAF Version 5.0 that will include this newly developed software.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3207: <i>Fleet Synthetic Training</i>
5) NWDC will produce a Next Generation Architecture that meets all Defense Information Security Agency (DISA) and Navy requirements. The architecture will include a Bill of Material (BOM) for the prototype equipment, and a transition plan for the 72+ nodes within the NCTE.		

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: Air/Ocean Tactical Applications	<b>PROJECT</b> 3207: Fleet Synthetic Training
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	MIPR	SNIM, DTIC:FT Belvoir, VA	2.368	-		-		-		-	0.000	2.368	
<b>Subtotal</b>			2.368	-		-		-		-	0.000	2.368	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NRL / AER:MS / CA / VA	0.471	0.561	Nov 2011	0.436	Nov 2012	-		0.436	0.000	1.468	
Software Development	WR	AER / GEOCENT:VA / MS	0.237	0.307	Nov 2011	0.305	Nov 2012	-		0.305	0.000	0.849	
Configuration Management	WR	AER / GEOCENT:VA / MS	0.135	0.100	Feb 2012	0.100	Feb 2013	-		0.100	0.000	0.335	
Studies and Analysis	Various	Various:Various	0.100	-		0.200	Jan 2013	-		0.200	0.000	0.300	
<b>Subtotal</b>			0.943	0.968		1.041		-		1.041	0.000	2.952	

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	3.311	0.968	1.041	-	1.041	0.000	5.320	

**Remarks**

---

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3207: <i>Fleet Synthetic Training</i>
---	---	---

Proj 3207	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Navy Training Baseline / DISA MSPP/MPLS Architecture</b>																												
JSAF 4.5 Release																												
NCTE Interoperability Guide 5.0																												
JSAF 4.3 Release																												
NCTE NextGen Prototype																												
NCTE Integration Events																												
<b>Fleet Synthetic Training</b>																												
Database Development																												
Architecture																												
Performance Surface Improvements																												
Development Work																												
Studies																												
Configuration Management																												

2013OSD - 0603207N - 3207



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3207: <i>Fleet Synthetic Training</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3207</b>				
Navy Training Baseline / DISA MSPP/MPLS Architecture: JSAF 4.5 Release:	4	2011	3	2012
Navy Training Baseline / DISA MSPP/MPLS Architecture: NCTE Interoperability Guide 5.0:	4	2011	3	2012
Navy Training Baseline / DISA MSPP/MPLS Architecture: JSAF 4.3 Release:	4	2011	2	2012
Navy Training Baseline / DISA MSPP/MPLS Architecture: NCTE NextGen Prototype:	4	2011	3	2012
Navy Training Baseline / DISA MSPP/MPLS Architecture: NCTE Integration Events: NCTE Integration Events	4	2011	4	2012
Fleet Synthetic Training: Database Development:	1	2012	4	2017
Fleet Synthetic Training: Architecture:	2	2012	4	2017
Fleet Synthetic Training: Performance Surface Improvements:	2	2012	4	2017
Fleet Synthetic Training: Development Work:	1	2012	4	2017
Fleet Synthetic Training: Studies:	1	2012	4	2017
Fleet Synthetic Training: Configuration Management:	2	2012	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3229: <i>JMAPS</i>
---	---	--------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3229: <i>JMAPS</i>	68.093	56.698	-	-	-	-	-	-	-	0.000	124.791
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Joint Milli-Arcsecond Pathfinder Survey (JMAPS) program. Joint strike operations require extremely accurate Positioning, Navigation, and Timing (PNT) systems in order to locate hostile threats with space-borne Intelligence Surveillance and Reconnaissance (ISR) systems, and then to deliver ordnance on precisely selected targets. The Navy provides a key component of PNT - the Celestial Reference Frame. This reference frame is defined in star catalogs that are used in conjunction with star trackers to determine orientation of space-based sensors to minimize target location error and the resultant weapon system accuracy. The accuracy of star positions (hence ability to hit desired target) is degrading with time due to the movement of stars since the last highly accurate space-based measurements of star positions (order of 1 milli-arcsecond) were made in 1991. The JMAPS initiative will satisfy the emerging requirements for a new high accuracy star catalog through a space-based. The program was terminated by Navy in FY13 and out due to ahead of current war-fighter requirements.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> JMAPS	68.093	56.698	-
<b>Articles:</b>	0	0	
<b>FY 2011 Accomplishments:</b> Alignment of program requirements with full traceability from the Capability Description Document (CDD) to Space and Ground Segments Specification was completed. Completed activities including sub-system design reviews leading to a Program Preliminary Design Review (PDR) at the end of Sept 2011. Established program baseline in preparation for a Gate 3 review in July 2011 and IBR in early 2012. Continued risk reduction and long lead development items for the payload, spacecraft, and ground system. Performed analysis on expected system level performance to ensure current design satisfies Key Performance Parameters (KPPs) and Key System Attributes (KSAs).			
<b>FY 2012 Plans:</b> JMAPS will close out all PDR activities, with the exception of the ground segment, and begin advance design and engineering activities. Complete spacecraft bus component fabrication and deliver in place. Complete instrument design including detector and partial instrument electronics, finalizing the optical telescope design, and initializing telescope production. Final deliveries of the sensor chip assemblies will occur and chip integration into the Focal Plane Assembly (FPA) will begin. Delivery of the engineering model for FPA will occur. Update Mission performance analysis based on instrument and bus design and available test data. All design and development completed will capture program state at time of termination or enable transition of selected components to leverage current investment in technology development.			
<b>Accomplishments/Planned Programs Subtotals</b>	68.093	56.698	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3229: <i>JMAPS</i>

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

N/A

**D. Acquisition Strategy**

The program was terminated by Navy in FY13 and out due to ahead of current war-fighter requirements.

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3229: <i>JMAPS</i>
---	---	--------------------------------------

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Instrument Development & Integration	WR	Naval Research Laboratory:Washington, DC	54.110	19.043	Dec 2011	-		-		-	0.000	73.153	Continuing
Space Bus	SS/CPFF	AeroAstro, Inc.:Ashburn, VA	30.749	25.297	Dec 2011	-		-		-	0.000	56.046	Continuing
Optical Telescope	SS/CPFF	L3 Communications SSG:Tinsley, Wilmington, MA	6.799	6.160	Jan 2012	-		-		-	0.000	12.959	
Sensor Chip Assembly	SS/CPFF	Teledyne Scientific & Imaging (AKA Rockwell Intl.):Camarillo, CA	1.998	4.675	Jan 2012	-		-		-	0.000	6.673	
Mission Analysis	WR	United States Naval Observatory:Washington, DC	2.769	0.625	Jan 2012	-		-		-	0.000	3.394	Continuing
Algorithm Development	WR	United States Naval Observatory:Washington, DC	6.018	-		-		-		-	0.000	6.018	Continuing
System Requirements	Various	Various:Various	13.244	-		-		-		-	0.000	13.244	
<b>Subtotal</b>			115.687	55.800		-		-		-	0.000	171.487	

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Requirements and Performance Analysis, Systems Engineering	C/CPFF	MANDEX, Inc.:Arlington, VA	0.358	0.198	Nov 2011	-		-		-	0.000	0.556	Continuing
Trade-Off Studies	C/CPFF	AEROSPACE:Albuquerque, NM	0.200	-		-		-		-	0.000	0.200	0.200
Systems and Technical Support	Various	Universities/ Colleges:Various	0.150	0.100	Feb 2012	-		-		-	0.000	0.250	Continuing
<b>Subtotal</b>			0.708	0.298		-		-		-	0.000	1.006	

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy										<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>				<b>PROJECT</b> 3229: <i>JMAPS</i>					
<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PMO Support	SS/CPFF	BAH:San Diego, CA	0.365	0.600	Dec 2011	-		-		-	0.000	0.965	
PMO Support	SS/CPFF	ITS:Arlington, VA	1.125	-		-		-		-	0.000	1.125	Continuing
<b>Subtotal</b>			1.490	0.600		-		-		-	0.000	2.090	
			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			117.885	56.698		-		-		-	0.000	174.583	

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3229: <i>JMAPS</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Proj 3229</b>																												
Pre-Phase A Development -- Milestone - A	■																											
Phase A Development -- Concept Development	■	■	■	■	■	■	■	■	■																			
Phase A Development -- System Requirements Review (SRR)	■																											
Phase A Development -- Capability Development Document (CDD) Development	■																											
Phase A Development -- Preliminary Design Review	■	■	■	■	■	■	■	■	■																			
Phase A Development -- Milestone - B					■	■	■	■	■																			
Phase C Development -- Critical Design Review										■	■	■	■	■														

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603207N: <i>Air/Ocean Tactical Applications</i>	<b>PROJECT</b> 3229: <i>JMAPS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3229</b>				
Pre-Phase A Development -- Milestone - A	1	2011	1	2011
Phase A Development -- Concept Development	1	2011	2	2012
Phase A Development -- System Requirements Review (SRR)	1	2011	1	2011
Phase A Development -- Capability Development Document (CDD) Development	1	2011	1	2011
Phase A Development -- Preliminary Design Review	1	2011	4	2011
Phase A Development -- Milestone - B	1	2012	2	2012
Phase C Development -- Critical Design Review	3	2012	4	2012

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>								
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0603216N: <i>Aviation Survivability</i>								
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	9.151	10.893	8.783	-	8.783	6.640	5.761	5.885	6.135	Continuing	Continuing
0584: <i>Acft Protective Clothing</i>	5.693	7.106	5.049	-	5.049	3.496	2.599	2.644	2.720	Continuing	Continuing
0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>	1.439	1.643	1.616	-	1.616	1.454	1.475	1.527	1.585	Continuing	Continuing
0592: <i>Acft &amp; Ordnance Safety</i>	1.386	1.417	1.401	-	1.401	1.073	1.068	1.083	1.168	Continuing	Continuing
1819: <i>CV Acft Fire Suppress System</i>	0.633	0.727	0.717	-	0.717	0.617	0.619	0.631	0.662	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Aviation Survivability addresses the issues of aircrew and platform survivability, focusing on enhancing overall opportunity for aircrew and platform protection and enhanced performance. The capabilities addressed under this program element counter emerging threats of next generation operational weapons systems and enhance combat effectiveness in future operational mission scenarios.

**B. Program Change Summary (\$ in Millions)**

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	9.480	10.893	8.806	-	8.806
Current President's Budget	9.151	10.893	8.783	-	8.783
Total Adjustments	-0.329	-	-0.023	-	-0.023
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-0.168	-	-	-	-
• SBIR/STTR Transfer	-0.112	-	-	-	-
• Program Adjustments	-	-	-0.045	-	-0.045
• Rate/Misc Adjustments	-	-	0.022	-	0.022
• Congressional General Reductions Adjustments	-0.049	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603216N: <i>Aviation Survivability</i>

Schedule: Not Applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0584: <i>Acft Protective Clothing</i>	5.693	7.106	5.049	-	5.049	3.496	2.599	2.644	2.720	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Project 0584 develops, demonstrates, and validates technologies designed to enhance warfighter performance, protection, mission effectiveness, and survivability. The project addresses life support equipment, advanced helmet vision systems, escape systems technology, crew centered cockpit design, and control stations. Integrate and use alternative and new technologies for the Pilot Vehicle Integration, optimization of Intelligence Surveillance and Reconnaissance (ISR), and Forward Air Control-Air mission areas. Demonstrate innovative tools / approaches to improve situational awareness, new ISR technologies, and Graphical User Interfaces (new symbology and optimized logic for system employment). It responds to a number of operational requirements documents, including OR# 210-05-88 for Chemical and Biological protection, OR# 099-05-087 for Laser Eye Protection, and the joint Air Force/Navy (CAF-208-93) for an Aerospace Control Helmet Mounted Cueing System.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Advanced Technology Crew Station</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Developed high resolution Ultra eXtended Graphics Array Charge Coupled Device day / night vision cameras. Began safety of flight testing on a tactical platform. Migrated crashworthy seating designs to the fast attack boat community. Focused on shock and vibration work, Under Pilot Vehicle Interface draft experimental paradigm, in collaboration with the Royal Netherlands Air Force to assess the relationship between scan patterns (e.g., eye movements) and information processing.</p> <p><b>FY 2012 Plans:</b> Expand capability of rotary system to accommodate tactical platforms, begin integration of high resolution 4 megapixel cameras. Begin collaborative experimental data collection with the Netherlands under the signed Memorandum of Agreement to determine optimal scan patterns. Studies will occur in both the United States and Netherlands Ministry of Defense simulators. Continue the development and testing of the smart controllers for cockpit and external airbag deployment.</p> <p><b>FY 2013 Plans:</b> Improve manufacturability of digital, high resolution (4 megapixel) night cameras. Begin development of high resolution (4 megapixel) displays. Continue safety of flight testing on a tactical platform for the Advanced Helmet Vision System. Begin integrating smart controllers for crashworthy seating and external airbag deployment into the Joint Multi Role Future Vertical Lift platforms.</p>	<p>4.669</p> <p>0</p>	<p>5.617</p> <p>0</p>	<p>3.982</p> <p>0</p>
<p><b>Title:</b> Advanced Integrated Life Support System</p> <p style="text-align: right;"><b>Articles:</b></p>	<p>1.024</p> <p>0</p>	<p>1.489</p> <p>0</p>	<p>1.067</p> <p>0</p>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b><i>FY 2011 Accomplishments:</i></b> Complete and standardize fixed wavelength protective technologies to accommodate all substrates (spectacle, visor, goggle, step-in visor). Demonstrate protection in a visor and spectacle format. Finalize design for both man and aircraft mounted cooling system.</p> <p><b><i>FY 2012 Plans:</i></b> Develop prototype personal mounted cooling device for initial testing. Modify visor / spectacle laser protective technologies to include color balancing. Color balancing will improve cockpit compatibility by reducing spectral distortion.</p> <p><b><i>FY 2013 Plans:</i></b> Work jointly with Air Force and Army to expand the anthropometric database. Use injury data and Navy aircrew anthropometry to further improve aircrew accommodation (seating and protective personal equipment) and injury analysis / mitigation. Finish study of adding corrective prescriptions to laser eye protection.</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		5.693	7.106	5.049
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>D. Acquisition Strategy</b>				
Primary Hardware Development for the Navy Advanced Technology Crew Station efforts in FY11 will be performed under a Cost Plus Fixed Fee Indefinite Delivery Indefinite Quantity contract.				
<b>E. Performance Metrics</b>				
Complete development of advanced crashworthy system level models, investigate improved visual search methodologies, and improve the ability to assess cockpit compatibility through new analytic approaches to anthropometry.				

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	GenTex:Simpson, PA	7.628	4.317	Jan 2012	1.960	Jan 2013	-		1.960	0.000	13.905	13.905
Systems Engineering	WR	NAWCAD:Pax River MD	29.664	1.090	Dec 2011	0.589	Dec 2012	-		0.589	Continuing	Continuing	Continuing
Licenses	WR	NAWCAD:Pax River MD	1.085	0.211	Dec 2011	0.211	Dec 2012	-		0.211	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Intevac:San Jose CA	-	-		1.192	Jan 2013	-		1.192	0.000	1.192	1.192
Prior Year Prod Dev no Longer Funded in Budget Year or Outyears	Various	Various:Various	13.900	-		-		-		-	0.000	13.900	
<b>Subtotal</b>			52.277	5.618		3.952		-		3.952			

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Configuration Management	WR	NAWCAD:Pax River MD	1.228	0.596	Dec 2011	0.110	Dec 2012	-		0.110	Continuing	Continuing	Continuing
Prior Year Support no Longer Funded in Budget Year or Outyears	Various	Various:Various	3.232	-		-		-		-	0.000	3.232	
<b>Subtotal</b>			4.460	0.596		0.110		-		0.110			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River MD	2.783	0.502	Dec 2011	0.545	Dec 2012	-		0.545	Continuing	Continuing	Continuing

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2013 Navy</b>	<b>DATE: February 2012</b>
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Prior Year T&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	18.240	-		-		-		-	0.000	18.240	
<b>Subtotal</b>			21.023	0.502		0.545		-		0.545			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support	WR	NAWCAD:Pax River MD	2.120	0.340	Dec 2011	0.392	Dec 2012	-		0.392	Continuing	Continuing	Continuing
Travel	PO	NAVAIR:Pax River MD	0.385	0.050	Oct 2011	0.050	Oct 2012	-		0.050	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various	Various:Various	0.010	-		-		-		-	0.000	0.010	
<b>Subtotal</b>			2.515	0.390		0.442		-		0.442			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			80.275	7.106		5.049		-		5.049			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>
---	--	---

<b>Acft Protective Clothing</b>	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Intensified Unity Mag Goggle</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Advanced Helmet Vision System (AHVS)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Advanced Integrated Life Support Systems (AILSS)</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Injury Prevention</div>																											
<b>Test &amp; Evaluation Milestones</b>	<div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">AHVS Laboratory Testing</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">AHVS Safety of Flight Testing</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Advanced Technology Crew Station (ATCS)</div>																											

2013DON - 0603216N - 0584

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0584: <i>Acft Protective Clothing</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Acft Protective Clothing</i></b>				
Acquisition Milestones: Intensified Unity Mag Goggle	1	2011	2	2011
Acquisition Milestones: Advanced Helmet Vision System (AHVS)	1	2011	4	2017
Acquisition Milestones: Advanced Integrated Life Support Systems (AILSS)	1	2011	4	2017
Acquisition Milestones: Injury Prevention	1	2011	4	2013
Test & Evaluation Milestones: AHVS Laboratory Testing	1	2011	2	2014
Test & Evaluation Milestones: AHVS Safety of Flight Testing	1	2011	4	2015
Test & Evaluation Milestones: Advanced Technology Crew Station (ATCS)	1	2011	4	2017



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>	1.439	1.643	1.616	-	1.616	1.454	1.475	1.527	1.585	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Aircraft Survivability, Vulnerability and Safety. This project develops prototype hardware to improve the survivability of Navy and Marine Corps aircraft. This project addresses the likelihood of an aircraft being hit (susceptibility) and the probability of a kill if the aircraft is hit (vulnerability). Types of programs funded under this project include signature reduction efforts, subsystem and component hardening and development of fire and explosion suppression techniques for fuel systems.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Technology Requirements	0.250	0.278	0.259
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Updated program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, and threat systems analysis.			
<b>FY 2012 Plans:</b> Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, fire protection technologies, threat systems analysis, and biofuels impacts to survivability systems.			
<b>FY 2013 Plans:</b> Update program master plan based on trade studies to determine future technology requirements. Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, threat systems analysis, and biofuels impacts to survivability systems.			
<b>Title:</b> Technology Design & Development	0.782	0.920	0.956
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Develop prototype materials to reduce acoustic/infrared footprint of operational platforms. Transitioned prototype of transparent armor to another DoD organization. Develop platform specific gearbox polymer modifications.			
<b>FY 2012 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Develop prototype materials to reduce infrared footprint of operational platforms. Develop and demonstrate/validate phase II prototype of transparent armor canopy and egress system. Develop platform-specific gearbox polymer modifications. Develop biofuels-compatible fuel bladders for testing.  <b>FY 2013 Plans:</b> Evaluate equipment/technologies to reduce infrared footprint of operational platforms. Evaluate alternate transparent armor materials for canopy upgrades. Develop platform specific gearbox polymer modifications. Develop biofuels-compatible fuel bladders for testing. Develop alternate O2 bottles.			
<b>Title:</b> Technology Test & Evaluation  <b>FY 2011 Accomplishments:</b> Performed live fire testing on platform specific gearbox polymer modifications.  <b>FY 2012 Plans:</b> Flight test armored canopy. Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on biofuels-compatible fuel bladder.  <b>FY 2013 Plans:</b> Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on biofuels-compatible fuel bladder. Perform live fire test on alternate O2 bottles.	0.407 0	0.445 0	0.401 0
<b>Articles:</b>			
<b>Accomplishments/Planned Programs Subtotals</b>	1.439	1.643	1.616

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

N/A

**D. Acquisition Strategy**

Primary Hardware Development will be performed under either a Cost Plus Fixed Fee or a Firm Fixed Price contract.

**E. Performance Metrics**

Evaluate 100% of deployed/developmental USN/USMC aircraft platforms for survivability deficiencies using Navy gap analysis as baseline. Identify prototype hardware solutions to address 25% to 50% of deficiencies, and initiate a minimum of two new demonstration projects per year.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development	SS/CPFF	Bell Helicopter:Dallas, TX	0.934	0.220	Mar 2012	-		-		-	0.000	1.154	1.154
Primary Hardware Development	WR	NAWCAD:Pax River, MD	10.342	0.256	Oct 2011	0.195	Oct 2012	-		0.195	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Pax River, MD	11.239	0.496	Oct 2011	0.653	Oct 2012	-		0.653	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD:China Lake, CA	-	0.050	Oct 2011	0.108	Oct 2012	-		0.108	Continuing	Continuing	Continuing
Prior Year MgmtT&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	4.770	-		-		-		-	0.000	4.770	
<b>Subtotal</b>			27.285	1.022		0.956		-		0.956			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Prior Year Support no Longer Funded in Budget Year or Outyears	Various	Various:Various	4.569	-		-		-		-	0.000	4.569	
<b>Subtotal</b>			4.569	-		-		-		-	0.000	4.569	

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	2.148	0.115	Oct 2011	0.113	Oct 2012	-		0.113	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	MIPR	Army Research Lab:Aberdeen, MD	0.405	0.103	Mar 2012	0.122	Nov 2012	-		0.122	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NAWCWD:China Lake, CA	1.647	0.150	Oct 2011	0.166	Oct 2012	-		0.166	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Prior Year T&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	0.348	-		-		-		-	0.000	0.348	
<b>Subtotal</b>			4.548	0.368		0.401		-		0.401			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support	WR	NAWCAD:Pax River, MD	0.879	0.238	Oct 2011	0.239	Oct 2012	-		0.239	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	JF Taylor:Lexington Park, MD	0.332	-		-		-		-	0.000	0.332	0.332
Travel	PO	NAVAIR:Patuxent River, MD	0.324	0.015	Dec 2011	0.020	Oct 2012	-		0.020	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various	Various:Various	0.008	-		-		-		-	0.000	0.008	
<b>Subtotal</b>			1.543	0.253		0.259		-		0.259			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			37.945	1.643		1.616		-		1.616			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>

Acft Survivability, Vulnerability & Safe	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
<b>Technology Requirements</b>				Survivability Master Plan Update 1								Survivability Master Plan Update 2								Survivability Master Plan Update 3								Survivability Master Plan Update 4				
	Asymmetric Threat Evaluations																															
<b>Technology Design &amp; Development</b>																																
	Rotary Wing Prototype Hardware																															
	Survivability Improvements																															
<b>Technology Test &amp; Evaluation</b>																																
	Rotary Wing Ballistic Testing																															
	Rotary Wing Signature Tests																															
	Prototype Hardware Tests																															

2013DON - 0603216N - 0591

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Acft Survivability, Vulnerability &amp; Safe</i></b>				
Technology Requirements: Survivability Master Plan Update 1	4	2011	4	2011
Technology Requirements: Survivability Master Plan Update 2	4	2013	4	2013
Technology Requirements: Survivability Master Plan Update 3	4	2015	4	2015
Technology Requirements: Survivability Master Plan Update 4	4	2017	4	2017
Technology Requirements: Asymmetric Threat Evaluations	1	2011	4	2017
Technology Design & Development: Rotary Wing Prototype Hardware	1	2011	4	2015
Technology Design & Development: Survivability Improvements	1	2011	4	2017
Technology Test & Evaluation: Rotary Wing Ballistic Testing	1	2011	4	2015
Technology Test & Evaluation: Rotary Wing Signature Tests	1	2011	4	2015
Technology Test & Evaluation: Prototype Hardware Tests	1	2011	4	2015

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0592: <i>Acft &amp; Ordnance Safety</i>	1.386	1.417	1.401	-	1.401	1.073	1.068	1.083	1.168	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Aircraft and Ordnance Safety Program transitions innovative munitions safety technology to Navy and Marine Corps air weapons, to comply with the Chief of Naval Operations direction that all munitions carried aboard Navy ships be insensitive to unplanned stimuli (thermal, impact, and shock events). The Aircraft and Ordnance Safety Program also ensures the safety and protection of personnel, aircraft, ships, and operational facilities, through improved precision targeting, fail-safe ordnance, selective effects munitions and shock/blast force protection technologies.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Insensitive Munitions	1.386	1.417	1.401
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
Improve Air-to-Air Demonstration: The Sidewinder warhead evaluation continued in direct support of PMA 259 FY14 planned transition. The Sidewinder Rocket motor technology evaluation also continued in support of a potential PMA 259 FY14 transition. Initiated Insensitive Munitions (IM) technology demonstration for 8-inch metal matrix rocket motor.			
Improve Air-Launched Weapons: Continued reactive liner evaluation in support of current transition efforts in bombs (Bomb Live Unit-BLU 110/111). Continued evaluation of affordable, high-performance, low shock sensitivity explosive for use with reactive liner and other potential applications. Initiated IM evaluation for Tomahawk tandem warhead.			
Advanced Containment/Case/Warhead Materials: Completed Tomahawk Sympathetic Detonation (SD) test/analysis in CNU-308 container. Continued pallet design/demonstration for BLU-126. Transitioned Tomahawk Mk 135 case effort from composite to hybrid design/demonstration.			
Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continued Advanced Anti-Radiation Guided Missile (AARGM) container design/demonstration for PMA 242 planned transition (FY11 focus on modeling/design based on FY10 baseline testing).			
<b>FY 2012 Plans:</b>			
Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor evaluation in direct support of PMA 259 FY14 planned transition. Continue IM technology demonstration for 8-inch metal matrix rocket motor.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Improve Air-Launched Weapons: Continue reactive liner evaluation in support of current transition efforts in bombs (BLU 110/111). Continue IM evaluation for Tomahawk tandem warhead. Initiate minimum smoke propellant demonstration for rockets (transition out of Joint Service IM Technology Program).</p> <p>Advanced Containment/Case/Warhead Materials: Continue Tomahawk hybrid case Mk 135 design/demonstration. Initiate IM evaluation of new Mk 135 propellant in composite case.</p> <p>Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continue AARGM container design/demonstration for PMA 242 planned transition (finalize design/initiate IM testing). Initiate shape charge jet test/evaluation for NAVAIR priority IM weapons.</p> <p><b>FY 2013 Plans:</b></p> <p>Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor evaluation in support of PMA 259 FY14 planned transition. Continue Insensitive Munitions (IM) technology demonstration for 8-inch metal matrix rocket motor.</p> <p>Improve Air-Launched Weapons: Continue IM technical evaluation/demonstration for Bomb Live Unit (BLU) 110 in support of current transition efforts and the PMA 201 plan of action and milestones. Continue IM evaluation for Tomahawk tandem (Joint Multi-Effects Warhead System) warhead, and initiate demonstration. Continue minimum smoke propellant demonstration for rockets (transition out of Joint Service IM Technology Program).</p> <p>Advanced Containment/Case/Warhead Materials: Continue Tomahawk Mk 135 hybrid case design/demonstration with evaluation of new propellant designed to improve slow cook-off and operational performance.</p> <p>Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Finalize Advanced Anti-Radiation Guided Missile (AARGM) container Insensitive Munitions testing for PMA 242. Initiate shape charge jet test/evaluation for NAVAIR priority IM weapons. Initiate Sidewinder Block III container design/demonstration to support PMA 259 transition. Continue alternative barrier evaluation for ballistic and shock mitigation.</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		1.386	1.417	1.401
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>D. Acquisition Strategy</b>				
Not applicable.				



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>

**E. Performance Metrics**

The Aircraft and Ordnance Safety program will initiate six to nine technology development/maturation efforts to improve Insensitive Munitions signature and will work to transition those technologies to weapons programs. The weapons programs will be chosen based on PEO(U&W) weapons portfolio and will focus on the priority weapons as defined in the 2011/2012 Insensitive Munitions strategic plan.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
				Systems Engineering	WR	NAWCWD:China Lake, CA	29.629	1.417	Nov 2011	1.401			
<b>Subtotal</b>			29.629	1.417		1.401		-		1.401			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
				Acquisition Workforce Fund	Various	Various:Various	0.008	-		-			
<b>Subtotal</b>			0.008	-		-		-		-	0.000	0.008	

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			29.637	1.417		1.401		-		1.401			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>
---	--	---

<b>Acft &amp; Ordnance Safety</b>	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Air-to-Air Missile Demonstration/Testing																											
	Improved Air-Launched Weapons																											
	Advanced Containment/Case/Warhead Materials																											
	Shock/Blast Barrier Protection Modeling Demonstration/Testing																											
	Advanced Energetic Materials																											

2013DON - 0603216N - 0592

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 0592: <i>Acft &amp; Ordnance Safety</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Acft &amp; Ordnance Safety</i></b>				
Air-to-Air Missile Demonstration/Testing	1	2011	4	2017
Improved Air-Launched Weapons	1	2011	4	2017
Advanced Containment/Case/Warhead Materials	1	2011	4	2017
Shock/Blast Barrier Protection Modeling Demonstration/Testing	1	2011	4	2017
Advanced Energetic Materials	1	2011	4	2017

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>				<b>PROJECT</b> 1819: <i>CV Acft Fire Suppress System</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1819: <i>CV Acft Fire Suppress System</i>	0.633	0.727	0.717	-	0.717	0.617	0.619	0.631	0.662	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 improved fire-fighting systems and fire protective measures for aircraft-related fires on aircraft carriers, including assessment of fire properties, definition of fire threats, improvements to fire-fighting agents and delivery systems, fire detection and suppression system performance evaluations, and fire-fighter training improvements.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Fire-Fighting	0.633	0.727	0.717
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
Tested hardware for cooling of Joint Strike Fighter (JSF) internally carried ordnance. Evaluated adequacy of current procedures for handling aircraft composite fires with consideration of new-generation aircraft composites. Issued improved proximity suit commercial item description. Finalized procedures for high-occupancy/rolled helicopter crash incident. Issued final report of Halon 1211 replacement recommendations. Issued report identifying rapid canopy access tool. Authored necessary revisions/additions to the Aircraft Fire-Fighting Naval Air Training and Operating Procedures Standardization (NATOPS) and submit for consideration. Provided subject matter expert support to the Aircraft Fire Fighting NATOPS (80R-14) model manager in preparation for the 80R-14 Naval NATOPS Rewrite Conference. Initiated development of Aqueous Film-Forming Foam (AFFF) application nozzle and procedures for Electromagnetic Aircraft Launch System (EMALS).			
<b>FY 2012 Plans:</b>			
Continue to test hardware for cooling of JSF internally carried ordnance. Continue development of AFFF application nozzle and procedures for EMALS. Finalize procedures for cooling of JSF internally carried ordnance. Provide subject matter expert support to the Aircraft Fire Fighting NATOPS (80R-14) model manager during the upcoming 80R-14 NATOPS Rewrite Conference. Evaluate the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Continue participation in development/testing of new environmentally friendly AFFF concentrates.			
<b>FY 2013 Plans:</b>			
Continue development of AFFF application nozzle and procedures for EMALS. Research means to prevent aircraft loss due to lithium ion battery runaway casualty. Initiate study to determine crash and fire procedures necessary for large-frame unmanned air vehicles (e.g., Navy Unmanned Combat Air System). Begin development of a composite filtering flash hood. Conclude evaluation			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603216N: <i>Aviation Survivability</i>	<b>PROJECT</b> 1819: <i>CV Acft Fire Suppress System</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
of the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Develop doctrine and tactics to address hazardous material pile fire threatening aircraft in hangar.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.633	0.727	0.717

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

N/A

**D. Acquisition Strategy**

Not applicable.

**E. Performance Metrics**

The Carrier Aircraft Fire Suppression (CAFS) program will, at a minimum, fund 6 to 10 projects per year that investigate and evaluate tactical capability gaps and potential capability improvements regarding shipboard aircraft fire suppression doctrine and equipment. CAFS projects will have a greater than 90% success rate of insertion into DON shipboard aircraft fire-fighting procedures and documentation.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	3.997	3.702	3.773	-	3.773	3.327	3.424	3.539	3.609	93.748	119.119
3050: <i>Deployable JT Command and Control</i>	3.997	3.702	3.773	-	3.773	3.327	3.424	3.539	3.609	93.748	119.119

**A. Mission Description and Budget Item Justification**

Deployable Joint Command and Control (DJC2) is a Secretary of Defense (SECDEF) and Chairman, Joint Chiefs of Staff (CJCS) priority Department of Defense transformation initiative that is providing a standardized, integrated, rapidly deployable, modular, scaleable, and reconfigurable joint command and control (C2) capability to designated Geographic Combatant Commands (GCCs). DJC2 is the material solution to Defense Planning Guidance that called for the development of Standing Joint Task Forces (JTFs) with a deployable C2 capability. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. DJC2 provides GCCs and JFCs a mission critical, integrated family of systems with which to plan, control, coordinate, execute, and assess operations. It is designed to deploy rapidly, set up within hours, and quickly provide necessary C2 mission and collaboration functionality across the full spectrum of JTF operations. GCC and JTF commanders will use a deployable joint command and control capability for day-to-day operations, as well as when deployed for training or contingency operations to include Humanitarian Assistance and Disaster Relief (HA/DR) efforts. The capability is intended for all levels of conflict and will be reconfigurable to meet specific GCC and JTF mission requirements. This capability must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	4.275	3.702	3.818	-	3.818
Current President's Budget	3.997	3.702	3.773	-	3.773
Total Adjustments	-0.278	-	-0.045	-	-0.045
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.125	-			
• SBIR/STTR Transfer	-0.131	-			
• Rate/Misc Adjustments	-	-	-0.045	-	-0.045
• Congressional General Reductions Adjustments	-0.022	-	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>				<b>PROJECT</b> 3050: <i>Deployable JT Command and Control</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3050: <i>Deployable JT Command and Control</i>	3.997	3.702	3.773	-	3.773	3.327	3.424	3.539	3.609	93.748	119.119
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Deployable Joint Command and Control (DJC2) is a Secretary of Defense (SECDEF) and Chairman, Joint Chiefs of Staff (CJCS) priority Department of Defense transformation initiative that is providing a standardized, integrated, rapidly deployable, modular, scaleable, and reconfigurable joint command and control (C2) capability to designated Geographic Combatant Commands (GCCs). DJC2 is the material solution to Defense Planning Guidance that called for the development of Standing Joint Task Forces (JTFs) with a deployable C2 capability. DJC2 will ensure that Joint Force Commanders (JFC) are equipped, as well as trained and organized, to carry out their C2 responsibilities. DJC2 provides GCCs and JFCs a mission critical, integrated family of systems with which to plan, control, coordinate, execute, and assess operations. It is designed to deploy rapidly, set up within hours, and quickly provide necessary C2 mission and collaboration functionality across the full spectrum of JTF operations. GCC and JTF commanders will use a deployable joint command and control capability for day-to-day operations, as well as when deployed for training or contingency operations to include Humanitarian Assistance and Disaster Relief (HA/DR) efforts. The capability is intended for all levels of conflict and will be reconfigurable to meet specific GCC and JTF mission requirements. This capability must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces.

Note that DJC2 is not a follow-on or replacement system for the joint Global Command and Control Systems (GCCS); rather, DJC2 will utilize GCCS in its core suite of applications, ensuring interoperability with the worldwide-installed base of GCCS-J.

FY13 funds development of efforts for systems engineering and integration, and DJC2 Test Bed. This includes addressing obsolescence and security posture enhancements as required.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Systems Engineering & Integration	1.823	1.477	1.508
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
Identified and incorporated emergent/mandated Key Information Profiles (KIP) required by the DJC2 Net-Ready Key Performance Parameter (KPP) into the system design. Updated Information Support Plan to reflect system architecture changes and obtained CJCS J6/J2 approval. With validated architecture, obtained renewal of the DJC2 Core System Authority to Operate (ATO) and performed required testing and information assurance mitigation to support ATO approval. Investigated potential hybrid power solutions for diesel generator replacement.			
<b>FY 2012 Plans:</b>			



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>	<b>PROJECT</b> 3050: <i>Deployable JT Command and Control</i>
---	---	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Continue to identify and incorporate emerging/mandated Key Information Profiles required by the DJC2 Net Ready KPP into system design. Obtain prototype equipment and conduct trades studies per the system engineering guidelines. Conduct Critical Design Reviews for upgrade plan upon design approval, prepare the mandatory Engineering Change Proposals, and identify testing, training, and sparing requirements. Construct, integrate and test an alternative power scheme.</p> <p><b>FY 2013 Plans:</b> Provide system enhancements to the communications system and validate through regression testing to support fielding decisions. Develop, test and evaluate a new Rapid Response Kit upgrade to include possible baseband solutions and various Super High Frequency (SHF) options.</p> <p><b>Title:</b> DJC2 RDT&amp;E Test Bed</p> <p align="right"><b>Articles:</b></p>	2.174	2.225	2.265
	0	0	0
<p><b>FY 2011 Accomplishments:</b> Completed testing of revised Deployable Joint Command and Control (DJC2) Network System Design. Incorporated fixes to the network system and validated through regression testing to support fielding decisions. Finalized and tested the DJC2 Virtual Machine and Portal Synchronization tool to include server procurement, network support and testing thereby providing the ability to push updated virtual machines and command and control portals to any given DJC2 from either garrison location or the DJC2 Operational Support Center, significantly improving mission tailorability. Conducted trade studies to identify the next generation client for DJC2.</p> <p><b>FY 2012 Plans:</b> Continue to incorporate fixes to the network system and validate through regression testing to support fielding decisions. Continue to conduct trade studies to identify the next generation client for DJC2. Identify and incorporate changes to the DJC2 test bed based on lessons learned from fielded systems and operational world events.</p> <p><b>FY 2013 Plans:</b> Continue to incorporate fixes to the network system and validate through regression testing to support fielding decisions. Develop, design and integrate new information technology into the DJC2. Use DJC2 test bed for software testing and development of new capabilities.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	3.997	3.702	3.773

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2013</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
			<b>Base</b>	<b>OCO</b>	<b>Total</b>						
• OPN /2804: DJC2	23.196	8.994	9.064	0.000	9.064	3.325	3.346	3.244	3.332	147.425	335.619

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>	<b>PROJECT</b> 3050: <i>Deployable JT Command and Control</i>

**D. Acquisition Strategy**

This RDT&E line supports an evolutionary acquisition strategy. The intent of this strategy is to: develop a system based upon a current understanding of joint requirements; rapidly field systems based upon those requirements; analyze operational utilization of the systems; and roll the results of the analysis into periodic upgrades of the systems to maintain currency and maximize operational effectiveness. The baseline configuration is based upon existing Command, Control, Communications, Computers, & Intelligence (C4I) systems, scaled to the Combatant Command level. The follow-on configurations will include newly developed capabilities based on emergent, joint requirements and operational feedback based upon utilization of earlier delivered systems.

**E. Performance Metrics**

The Deployable Joint Command and Control (DJC2) program continues to identify, evaluate and test a minimum of 3 - 5 new technologies per year based on emergent / joint requirements for potential insertion into the DJC2 system upgrade plan.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>	<b>PROJECT</b> 3050: <i>Deployable JT Command and Control</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NSWC:PCD	45.811	0.869	Nov 2011	0.885	Nov 2012	-		0.885	21.919	69.484	
Engineering Facility Development	WR	NSWC:PCD	34.024	1.224	Dec 2011	1.194	Dec 2012	-		1.194	32.405	68.847	
Hardware Development	WR	NSWC:PCD	20.012	0.505	Dec 2011	0.516	Dec 2012	-		0.516	7.566	28.599	
<b>Subtotal</b>			99.847	2.598		2.595		-		2.595	61.890	166.930	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Integration	WR	NSWC:PCD	39.764	0.608	Nov 2011	0.623	Nov 2012	-		0.623	4.978	45.973	
Technical Investigations	MIPR	MISC:VA	13.426	-		-		-		-	0.000	13.426	
Trade-off Studies & Analyses	MIPR	MISC:VA	9.000	-		-		-		-	0.000	9.000	
<b>Subtotal</b>			62.190	0.608		0.623		-		0.623	4.978	68.399	

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC:PCD	10.115	0.142	Dec 2011	0.159	Dec 2012	-		0.159	6.421	16.837	
Operational Test & Evaluation	WR	NSWC:PCD	11.341	0.154	Dec 2011	0.173	Dec 2012	-		0.173	7.666	19.334	
Test Assets	MIPR	MISC:MISC	4.000	-		-		-		-	0.000	4.000	
<b>Subtotal</b>			25.456	0.296		0.332		-		0.332	14.087	40.171	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy

**DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>	<b>PROJECT</b> 3050: <i>Deployable JT Command and Control</i>
---	---	--

Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NSWC:PCD	30.365	0.200	Nov 2011	0.223	Nov 2012	-		0.223	12.793	43.581	
Acquisition Work Force	WR	NSWC:PCD	0.029	-		-		-		-	0.000	0.029	
<b>Subtotal</b>			30.394	0.200		0.223		-		0.223	12.793	43.610	
			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			217.887	3.702		3.773		-		3.773	93.748	319.110	

Remarks

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy															<b>DATE:</b> February 2012														
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>										<b>R-1 ITEM NOMENCLATURE</b> PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>										<b>PROJECT</b> 3050: <i>Deployable JT Command and Control</i>									

Fiscal Year	2011				2012				2013				2014				2015				2016				2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Acquisition Milestones</b>																												
MILESTONE C																												
IOC																												
FDDR																												
<b>Test &amp; Evaluation Milestones</b>																												
Developmental Test			△ DT/OT				△ DT/OT					△ DT/OT																
<b>Production Milestones</b>	Fielding and Sustainment of System Enhancements																											
<b>Deliveries</b>																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603237N: <i>Deployable JT Cmd &amp; Control</i>	<b>PROJECT</b> 3050: <i>Deployable JT Command and Control</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3050</b>				
DEVELOPMENTAL TEST/OPERATIONAL TEST	3	2011	3	2011
DEVELOPMENTAL TEST/OPERATIONAL TESTa	3	2012	3	2012
DEVELOPMENTAL TEST/OPERATIONAL TESTb	3	2013	3	2013
DEVELOPMENTAL TEST/OPERATIONAL TESTc	3	2014	3	2014
DEVELOPMENTAL TEST/OPERATIONAL TESTd	3	2015	3	2015
DEVELOPMENTAL TEST/OPERATIONAL TESTe	3	2016	3	2016
DEVELOPMENTAL TEST/OPERATIONAL TESTf	3	2017	3	2017
FIELDING AND SUSTAINMENT OF SYSTEM ENHANCEMENTS	1	2011	4	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603251N: <i>Aircraft Systems</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	10.497	24.512	-	24.512	2.736	-	-	-	0.000	37.745
2777: <i>Highly Integrated Photonics (HIP)</i>	-	-	19.955	-	19.955	-	-	-	-	0.000	19.955
3331: <i>C-2 System Development</i>	-	10.497	4.557	-	4.557	2.736	-	-	-	0.000	17.790

**A. Mission Description and Budget Item Justification**

This program element supports the study, evaluation, optimization and enhancements of fielded aircraft systems not supported by a system specific RDTEEN program element. The supported efforts will provide a basis to recommend options for improved efficiency, minimization of life cycle cost, and other affordable options. As naval aircraft systems age, and analysis of the programmatic and /or reliability enhancements options allows the Department of the Navy to more effectively understand and manage system lifecycle costs and implications in future airborne platforms.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	-	10.497	4.648	-	4.648
Current President's Budget	-	10.497	24.512	-	24.512
Total Adjustments	-	-	19.864	-	19.864
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-	-	-	-	-
• Program Adjustments	-	-	19.921	-	19.921
• Rate/Misc Adjustments	-	-	-0.057	-	-0.057

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Revised Integrated Master Schedule (IMS) to reflect more realistic program milestones and testing.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 2777: <i>Highly Integrated Photonics (HIP)</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
<i>2777: Highly Integrated Photonics (HIP)</i>	-	-	19.955	-	19.955	-	-	-	-	0.000	19.955
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program element supports the requirements study, technology maturation, system design and demonstration of a general-purpose, future-proof avionics network that replaces copper with glass. As both analog and digital onboard information transport and processing requirements continue to grow, life cycle costs associated with maintaining and upgrading current stove-piped networks aboard naval aircraft systems becomes unsustainable. The size, weight, power, high data rate and scalability advantages of a single-mode fiber optic network have significant total ownership cost savings implications that will allow the Department of the Navy to more affordably and effectively meet mission requirements well into the future. The activities funded will provide a networking baseline or standard that can be incorporated into airborne platforms that maximize networking system capability while minimizing associated life cycle costs. While the development under this program does specifically address airborne platforms where size and weight of the cable plant is particularly important, ultimately the network technology developed will have broad applicability to shipboard and submarine platform network requirements as well.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Highly Integrated Photonics (HIP) Naval Networking	-	-	19.955
<b>Articles:</b>			0
<b>Description:</b> The overarching objective of this activity is to develop and demonstrate a highly integrated Local Area Network (LAN) for airborne platforms incorporating an optical fiber network that uses wavelength division multiplexing (WDM) to address demanding military network re-configurability, scalability, and technology refresh challenges. The telecommunication network application of WDM technology is fully mature (TRL9) for commercial environments with little constraint on size, weight, and power (SWAP). The program will leverage and enhance the telecommunication standards for optical fiber networks while addressing the SWAP restrictions and severe environmental requirements of military airborne platforms. The functionality of the technology developed cannot be obtained through Commercial-Off-The-Shelf (COTS) components due to SWAP constraints and the military environment. Effort will involve understanding the properties of engineered optical fiber components and electronic semiconductors as they apply to highly integrated optical fiber networks. Ultimately these higher performance components and networks will address the needs for all classes of military platforms.			
<b>FY 2013 Plans:</b> Development and demonstration of highly integrated local area network for naval platforms.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	19.955



UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 2777: <i>Highly Integrated Photonics (HIP)</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>D. Acquisition Strategy</b> Highly Integrated Photonics (HIP) Naval Networking strategy begins with development and acceptance of a Memorandum of Transition with F-35 PEO in support of the Core Avionics Master Plan sponsored by PMA209, Air combat Electronics Program Manager of Naval Aviation.		
<b>E. Performance Metrics</b> Performance that adheres to the conventional Wavelength Division Multiplex optical network protocol standards, wavelengths and interface with Ethernet 10Gbit/s physical layer standard.		

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 2777: <i>Highly Integrated Photonics (HIP)</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental and Architectural Studies	TBD	TBD:Not Specified	-	-		1.000	Oct 2012	-		1.000	0.000	1.000	
Primary Hardware Development	TBD	TBD:Not Specified	-	-		9.975	Apr 2013	-		9.975	0.000	9.975	
Component Foundry & Fabrication	TBD	TBD:Not Specified	-	-		4.500	Jun 2013	-		4.500	0.000	4.500	
Systems Engineering & Testing	TBD	TBD:Not Specified	-	-		2.400	Sep 2013	-		2.400	0.000	2.400	
<b>Subtotal</b>			-	-		17.875		-		17.875	0.000	17.875	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD:Pax River, MD	-	-		0.900	Oct 2012	-		0.900	0.000	0.900	
Government Engineering Support	WR	SPAWAR:San Diego, CA	-	-		0.200	Oct 2012	-		0.200	0.000	0.200	
Government Engineering Support	WR	NRL:Washington, DC	-	-		0.180	Oct 2012	-		0.180	0.000	0.180	
<b>Subtotal</b>			-	-		1.280		-		1.280	0.000	1.280	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	SPAWAR:San Diego, CA	-	-		0.800	Oct 2012	-		0.800	0.000	0.800	
<b>Subtotal</b>			-	-		0.800		-		0.800	0.000	0.800	

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>			<b>PROJECT</b> 2777: <i>Highly Integrated Photonics (HIP)</i>					
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	-		19.955		-		19.955	0.000	19.955	

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 2777: <i>Highly Integrated Photonics (HIP)</i>
---	--	--

HIP Naval Networking	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Developmental &amp; Architectural Studies</b>																												
Developmental & Architectural Studies																												
<b>Hardware Development</b>																												
Reviews																												
Design & Hardware Development																												
<b>Demonstrations</b>																												
Contractor Demo																												

2013OSD - 0603251N - 2777

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 2777: <i>Highly Integrated Photonics (HIP)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>HIP Naval Networking</i></b>				
Developmental & Architectural Studies: Developmental & Architectural Studies:	1	2013	2	2013
Hardware Development: Reviews: Preliminary	4	2013	4	2013
Hardware Development: Reviews: Critical	1	2014	1	2014
Hardware Development: Design & Hardware Development:	3	2013	3	2014
Demonstrations: Contractor Demo:	3	2014	4	2014

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 3331: <i>C-2 System Development</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3331: <i>C-2 System Development</i>	-	10.497	4.557	-	4.557	2.736	-	-	-	0.000	17.790
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The C-2A Greyhound is a high wing monoplane, twin engine turbo-prop aircraft capable of operating from both a shore base and all operational United States Navy aircraft carrier classes. The mission of the C-2A is to provide rapid response Carrier Onboard Delivery of fleet essential supplies, repair parts, and personnel to sustain at sea operations of deployed battle groups. In addition, the C-2A provides airdrop delivery and mobilization support for special operations forces from land bases and carriers, Search and Rescue, and Humanitarian Relief.

This project will fund required development, analysis, and testing of a Critical Brake Upgrade to correct a deficiency related to the operational ground controllability of the C-2A.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Critical Brake Upgrade	-	10.497	4.557
<b>Articles:</b>		0	0
<b>Description:</b> Provides funding for development, design, integration and test of an anti-skid brake system for the C-2A aircraft. This will correct a deficiency related to the operational ground controllability of the C-2A.			
<b>FY 2012 Plans:</b> Provides funding for development, design, integration and test of an anti-skid brake system for the C-2A aircraft.			
<b>FY 2013 Plans:</b> Funding is for on-going efforts to continue development, design, integration and test of anti-skid brake system for the C-2A aircraft.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	10.497	4.557

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• APN/0556: <i>C-2A(R) Series Modification (Includes OSIP 007-14 Critical Brake Upgrade)</i>	0.000	0.000	0.000	0.000	0.000	3.949	4.774	4.571	4.677	2.475	20.446

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 3331: <i>C-2 System Development</i>

**D. Acquisition Strategy**

The C-2 Operational Ground Controllability strategy will be exercised under an Engineering Change Proposal.

**E. Performance Metrics**

Validation is planned for second quarter FY13. Verification is planned for first quarter FY15. Final TD is planned for first quarter FY15.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 3331: <i>C-2 System Development</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	TBD	TBD:TBD	-	3.816	May 2012	2.009	May 2013	-		2.009	0.643	6.468	6.468
Systems Engineering	Various	Various:Various	-	0.375	May 2012	-		-		-	0.000	0.375	
<b>Subtotal</b>			-	4.191		2.009		-		2.009	0.643	6.843	

**Remarks**  
Totals may not add due to rounding.

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	TBD	TBD:TBD	-	2.232	May 2012	0.558	May 2013	-		0.558	0.000	2.790	2.790
Integrated Logistics Support	WR	North Island:North Island, CA	-	0.247	Feb 2012	0.252	Nov 2012	-		0.252	0.256	0.755	
Configuration Management	WR	North Island:North Island, CA	-	0.025	Feb 2012	0.025	Nov 2012	-		0.025	0.026	0.076	
Technical Data	WR	North Island:North Island, CA	-	0.484	Feb 2012	0.375	Nov 2012	-		0.375	0.114	0.973	
Maintenance Planning	WR	North Island:North Island, CA	-	0.280	Feb 2012	0.280	Nov 2012	-		0.280	0.000	0.560	
Government Engineering Support	WR	NAWCAD:Pax River, MD	-	1.258	Feb 2012	0.177	Nov 2012	-		0.177	0.049	1.484	
Government Engineering Support	WR	North Island:North Island, CA	-	0.950	Feb 2012	0.275	Nov 2012	-		0.275	0.053	1.278	
ETS - Contractor Engineering Support	C/CPFF	Various:Various	-	0.450	Feb 2012	0.111	Dec 2012	-		0.111	0.000	0.561	0.561
<b>Subtotal</b>			-	5.926		2.053		-		2.053	0.498	8.477	

**Remarks**  
Totals may not add due to rounding.



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 3331: <i>C-2 System Development</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	-	-		-		-		-	0.472	0.472	
Operational Test & Evaluation	WR	NAWCAD:Pax River, MD	-	-		-		-		-	0.726	0.726	
Test Assets	WR	NAWCAD:Pax River, MD	-	-		0.200	Nov 2012	-		0.200	0.200	0.400	
<b>Subtotal</b>			-	-		0.200		-		0.200	1.398	1.598	

**Remarks**

Totals may not add due to rounding.

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Contractor Support - MSS	C/CPFF	Various:Various	-	0.125	Feb 2012	0.101	Dec 2012	-		0.101	0.045	0.271	0.271
Government Engineering Support	WR	NAWCAD:Pax River, MD	-	0.061	Feb 2012	0.063	Nov 2012	-		0.063	0.048	0.172	
Government Engineering Support	WR	North Island:North Island, CA	-	0.019	Feb 2012	0.012	Nov 2012	-		0.012	0.009	0.040	
Program Management Support	WR	NAWCAD:Pax River, MD	-	0.097	Feb 2012	0.074	Nov 2012	-		0.074	0.060	0.231	
Program Management Support	WR	North Island:North Island, CA	-	0.028	Feb 2012	0.020	Nov 2012	-		0.020	0.010	0.058	
Travel	Various	Various:Various	-	0.050	Jan 2012	0.025	Oct 2012	-		0.025	0.025	0.100	
<b>Subtotal</b>			-	0.380		0.295		-		0.295	0.197	0.872	

**Remarks**

Totals may not add due to rounding.

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>			<b>PROJECT</b> 3331: <i>C-2 System Development</i>					
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	-	10.497		4.557		-		4.557	2.736	17.790	

**Remarks**  
Totals may not add due to rounding.

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile:** PB 2013 Navy

**DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**  
 1319: *Research, Development, Test & Evaluation, Navy*  
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
 PE 0603251N: *Aircraft Systems*

**PROJECT**  
 3331: *C-2 System Development*

C-2 System Development	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>																												
<b>Systems Development</b>																												
Hardware Development																												
Reviews																												
<b>Test &amp; Evaluation</b>																												
Technical Evaluation																												
<b>Deliveries</b>																												

2013OSD - 0603251N - 3331

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603251N: <i>Aircraft Systems</i>	<b>PROJECT</b> 3331: <i>C-2 System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>C-2 System Development</b>				
Systems Development: Hardware Development: Engineering & Manufacturing Development	2	2012	2	2014
Systems Development: Hardware Development: Validation	2	2013	2	2013
Systems Development: Hardware Development: Verification Install	1	2015	1	2015
Systems Development: Hardware Development: Drawings/Technical Data Development	4	2012	4	2014
Systems Development: Hardware Development: Maintenance Planning	4	2013	4	2014
Systems Development: Hardware Development: Technical Manual Development	2	2014	4	2015
Systems Development: Reviews: Preliminary Design Review/System Functional Review	4	2012	4	2012
Systems Development: Reviews: Critical Design Review	2	2013	2	2013
Systems Development: Reviews: Funtional Readiness Review/Test Readiness Review	1	2014	1	2014
Systems Development: Reviews: Technical Directive	1	2015	1	2015
Test & Evaluation: Technical Evaluation: Developmental Planning & Test	1	2014	2	2014
Deliveries: Production Deliveries - APN (6 Kits)	2	2014	2	2014
Deliveries: Production Deliveries FY15 - APN (8 Kits)	2	2015	2	2015
Deliveries: Production Deliveries FY16 - APN (8 Kits)	2	2016	2	2016

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	7.969	7.896	8.090	-	8.090	8.047	8.220	8.288	8.458	Continuing	Continuing
1292: <i>Adv ASW Sensors &amp; Proc</i>	5.529	5.435	5.648	-	5.648	5.651	5.825	5.875	5.999	Continuing	Continuing
3222: <i>Advanced High Altitude ASW</i>	2.440	2.461	2.442	-	2.442	2.396	2.395	2.413	2.459	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Includes RDT&E funds for advanced development and developmental testing of airborne anti-submarine warfare (ASW) systems, including aircraft, equipment, and devices for use against all types of submarine targets; and advanced, high-performance, underwater, mobile target for use in fleet ASW training exercises and for the operational evaluation of the MK-30 torpedo and the MK-48 torpedo weapons system improvement program.

<b>B. Program Change Summary (\$ in Millions)</b>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	8.249	7.915	8.125	-	8.125
Current President's Budget	7.969	7.896	8.090	-	8.090
Total Adjustments	-0.280	-0.019	-0.035	-	-0.035
• Congressional General Reductions	-	-0.019			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.208	-			
• Program Adjustments	-	-		-0.048	-0.048
• Rate/Misc Adjustments	-	-		0.013	0.013
• Congressional General Reductions Adjustments	-0.072	-		-	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 1292: <i>Adv ASW Sensors &amp; Proc</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1292: <i>Adv ASW Sensors &amp; Proc</i>	5.529	5.435	5.648	-	5.648	5.651	5.825	5.875	5.999	Continuing	Continuing
Quantity of RDT&E Articles	100	100	100	0	100	100	100	100	100		

**A. Mission Description and Budget Item Justification**

This program provides Air Anti-Submarine Warfare (ASW) platform effectiveness through development and maturization of advanced hardware and software associated with airborne acoustic and non-acoustic systems. This includes sensors and components, processing, post-processing, data recording and display capabilities to address regional threat scenarios against surfaced or submerged conventionally and nuclear powered submarines. Key objectives are platform accommodations of advanced active and passive sensors and components, improved detection, classification, localization, tracking, and increased capacity and flexibility to handle multi-sensor data loads. Programs being funded during the FYDP will investigate technologies such as: Over the Horizon Communications, Distributed Netted Sensors, transient signals, and source and receiver improvement technologies that will enhance passive and Multi-static Active Sensor Systems capabilities. Other programs being funded during the FYDP will provide for the development and maturization of persistent tactical search technologies that will allow transition to the localization and attack phase in all operationally relevant environments. In addition, the program will provide for the development and subsequent experimentation, including data collection and engineering measurement, of Multi-static Active Coherent sources and receivers, laser technologies, electro-optical and Multi-Spectral camera technologies, Radar, and Magnetic Anomaly Detection sensors. Those technologies that are deemed mature and provide increased operational capability will be approved for a production advanced processing build. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trials and experiments.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> System performance assessments	5.529	5.435	5.648
<b>Articles:</b>	100	100	100
<b>FY 2011 Accomplishments:</b>			
System performance assessments for Multi-Static Active Coherent ASW algorithms and other Acoustic and Non-Acoustic system enhancements. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trial and experiments.			
<b>FY 2012 Plans:</b>			
System performance assessments for Multi-Static Active Coherent ASW algorithms and other Acoustic and Non-Acoustic system enhancements. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trial and experiments.			
<b>FY 2013 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 1292: <i>Adv ASW Sensors &amp; Proc</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
System performance assessments for Multi-Static Active Coherent (MAC) ASW algorithms and other Acoustic and Non-Acoustic system enhancements. The test articles, which consist of passive/active sensors/components and associated processors, will support at-sea trial and experiments.			
<b>Accomplishments/Planned Programs Subtotals</b>	5.529	5.435	5.648

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

N/A

**D. Acquisition Strategy**

The included technology development are primarily in-house with contractor participation through existing vehicles.

**E. Performance Metrics**

System performance assessments for MAC Air Anti-Submarine Warfare (ASW) algorithms and other Acoustic and Non-Acoustic system enhancements by Air ASW Technology Assessment Board.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 1292: <i>Adv ASW Sensors &amp; Proc</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hdw Development	Various	VARIOUS:VARIOUS	0.916	0.400	Dec 2011	0.400	Dec 2012	-		0.400	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.916	0.400		0.400		-		0.400			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Software Development	WR	NAWCAD:PATUXENT RIVER, MD	3.425	-		-		-		-	0.000	3.425	
Studies & Analysis	WR	NAWCAD:PATUXENT RIVER, MD	5.181	-		0.300	Dec 2012	-		0.300	Continuing	Continuing	Continuing
<b>Subtotal</b>			8.606	-		0.300		-		0.300			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Dev Test & Eval	Various	VARIOUS:VARIOUS	15.681	0.500	Dec 2011	0.700	Dec 2012	-		0.700	Continuing	Continuing	Continuing
<b>Subtotal</b>			15.681	0.500		0.700		-		0.700			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Contractor Eng Spt	Various	VARIOUS:VARIOUS	14.087	3.327	Dec 2011	1.558	Dec 2012	-		1.558	Continuing	Continuing	Continuing
ENG & TECH SVCS (NON-FFRDC)	Various	VARIOUS:VARIOUS	2.682	0.100	Dec 2011	0.070	Dec 2012	-		0.070	Continuing	Continuing	Continuing
MGT & PROF SVCS (FFRDC)	Various	VARIOUS:VARIOUS	0.416	0.195	Dec 2011	0.300	Dec 2012	-		0.300	Continuing	Continuing	Continuing
Government Eng Spt	WR	NAWCAD:PATUXENT RIVER, MD	55.724	0.847	Dec 2011	2.310	Dec 2012	-		2.310	Continuing	Continuing	Continuing



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 1292: <i>Adv ASW Sensors &amp; Proc</i>
---	---	---

Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	VARIOUS:VARIOUS	0.068	0.066	Dec 2011	0.010	Dec 2012	-		0.010	Continuing	Continuing	Continuing
<b>Subtotal</b>			72.977	4.535		4.248		-		4.248			
<b>Project Cost Totals</b>			98.180	5.435		5.648		-		5.648			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 1292: <i>Adv ASW Sensors &amp; Proc</i>
---	---	---

Proj: 1292 - Adv ASW Sensors & Processors	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
<b>Performance Assessment</b>	Concurrent Proc/Battery Tech				Distributed Netted Sensors				Continuous Active Sonar																							
	OTH Comms								Engineering Measurement																							
<b>Transition Decision</b>	OTH Comms ◆				Concurrent Proc/Battery Tech ◆				Distributed Netted Sensors ◆				Continuous Active Sonar ◆																			
<b>Software</b>	Software Development																															
<b>Experiment/Exercise Participation</b>	Experiment/Exercise Participation																															
<b>Deliveries</b>																																
Test Articles	100				100				100				100				100				100				100				100			

*2013PB - 0603254N - 1292 Added Continuous Active Sonar (CAS) efforts in FY15 and FY16. Added CAS Transition Decision in FY16.*

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 1292: <i>Adv ASW Sensors &amp; Proc</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj: 1292 - Adv ASW Sensors &amp; Processors</b>				
Performance Assessment: Concurrent Processing/Battery Technology	1	2011	4	2012
Performance Assessment: Distributed Netted Sensors	1	2013	4	2014
Performance Assessment: Continuous Active Sonar	1	2015	4	2016
Performance Assessment: OTH Communications	1	2011	4	2011
Performance Assessment: Engineering Measurement	1	2012	4	2017
Transition Decision: OTH Communications	4	2011	4	2011
Transition Decision: Concurrent Processing/Battery Technology	4	2012	4	2012
Transition Decision: Distributed Netted Sensors	4	2014	4	2014
Transition Decision: Continuous Active Sonar	4	2016	4	2016
Software: Software Development	1	2011	4	2017
Experiment/Exercise Participation: Experiment/Exercise Participation	1	2011	4	2017
Deliveries: Test Articles: Test Article Deliveries (1)	1	2011	1	2011
Deliveries: Test Articles: Test Article Deliveries (2)	1	2012	1	2012
Deliveries: Test Articles: Test Article Deliveries (3)	1	2013	1	2013
Deliveries: Test Articles: Test Article Deliveries (4)	1	2014	1	2014
Deliveries: Test Articles: Test Article Deliveries (5)	1	2015	1	2015
Deliveries: Test Articles: Test Article Deliveries (6)	1	2016	1	2016
Deliveries: Test Articles: Test Article Deliveries (7)	1	2017	1	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 3222: <i>Advanced High Altitude ASW</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3222: <i>Advanced High Altitude ASW</i>	2.440	2.461	2.442	-	2.442	2.396	2.395	2.413	2.459	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Advanced High Altitude Anti-Submarine Warfare (HAASW) program performs studies and analyses to better perform the Air Anti-Submarine Warfare (ASW) mission on the P-8A aircraft. The P-8A aircraft, a commercial derivative Boeing 737 airframe, operates most efficiently at high altitudes. These studies are to explore technologies, which may lead to additional high altitude ASW capabilities.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Provide precision delivery of sonobuoys	2.440	2.461	2.442
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> FY11 efforts completed the Advanced HAASW and HAASW, Analysis of Alternatives and Technology Development Strategy initiated in FY11 for the execution of ASW at high altitude by the P-8A aircraft.			
<b>FY 2012 Plans:</b> FY12 is scheduled to perform studies, analyses and early prototyping of acoustic and non-acoustic technologies suitable for High Altitude ASW operations for the P-8A aircraft.			
<b>FY 2013 Plans:</b> FY13 is scheduled to perform studies, analyses and early prototyping of acoustic and non-acoustic technologies suitable for High Altitude ASW operations for the P-8A aircraft.			
<b>Accomplishments/Planned Programs Subtotals</b>	2.440	2.461	2.442

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

N/A

**D. Acquisition Strategy**

Develop modifications to incorporate capability into current sonobuoy sensors and integration into Air ASW platforms, P-8A as the lead aircraft.

**E. Performance Metrics**

Perform Studies and Analysis to better define Advanced HAASW program needs. Early prototypes will be developed to reduce risk for ASW operations at high altitudes by the P-8A aircraft.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 3222: <i>Advanced High Altitude ASW</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw Development	Various	VARIOUS:VARIOUS	1.370	-		-		-		-	0.000	1.370	1.370
A/C HW/SW Integration	Various	VARIOUS:VARIOUS	-	-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			1.370	-		-		-		-			

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Documentation	Various	VARIOUS:VARIOUS	-	-		-		-		-	Continuing	Continuing	Continuing
Studies & Analysis	WR	NAWCAD: PATUXENT RIVER, MD	0.850	0.100	Nov 2011	0.200	Nov 2012	-		0.200	Continuing	Continuing	Continuing
Studies & Analysis	Various	VARIOUS:VARIOUS	1.065	1.245	Nov 2011	1.526	Nov 2012	-		1.526	Continuing	Continuing	Continuing
<b>Subtotal</b>			1.915	1.345		1.726		-		1.726			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Field Tests	WR	NAWCAD: PATUXENT RIVER, MD	0.050	0.100	Nov 2011	0.080	Nov 2012	-		0.080	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.050	0.100		0.080		-		0.080			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Eng Spt	Various	VARIOUS:VARIOUS	0.200	0.385	Nov 2011	0.100	Nov 2012	-		0.100	Continuing	Continuing	Continuing
ENG & TECH SVCS (NON-FFRDC)	Various	VARIOUS:VARIOUS	0.230	0.150	Nov 2011	0.287	Nov 2012	-		0.287	Continuing	Continuing	Continuing



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 3222: <i>Advanced High Altitude ASW</i>
---	---	---

Proj: 3222 Advanced High Altitude ASW	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Contract Awards</b>	AoA Contract ●				Study Contract ●				Study Contract ●				Study Contract ●				Study Contract ●				Study Contract ●				Study Contract ●			
	Early Prototype Contract ●				Early Prototype Contract ●				Early Prototype Contract ●				Early Prototype Contract ●				Early Prototype Contract ●				Early Prototype Contract ●				Early Prototype Contract ●			
<b>Trade Studies</b>	Study & Analyze concept options and develop early prototypes																											

2013PB - 0603254N - 3222 Re-labeled "Technology Development" Contract to "AoA" Contract. Added Study Contract Awards in 2Q/13, 2Q/14, 2Q/15, 2Q/16 and 2Q/17 for initiation of Air ASW technology studies and analyses. Added Early Prototype Contract Awards in 2Q/13, 2Q/14, 2Q/15, 2Q/16 and 2Q/17 for initiation of early prototype of Air ASW sensors for P-8A.

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603254N: <i>ASW Systems Development</i>	<b>PROJECT</b> 3222: <i>Advanced High Altitude ASW</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj: 3222 Advanced High Altitude ASW</b>				
Contract Awards: Analysis of Alternatives Contract	2	2011	2	2011
Contract Awards: Study Contract (1)	2	2013	2	2013
Contract Awards: Study Contract (2)	2	2014	2	2014
Contract Awards: Study Contract (3)	2	2015	2	2015
Contract Awards: Study Contract (4)	2	2016	2	2016
Contract Awards: Study Contract (5)	2	2017	2	2017
Contract Awards: Early Prototype Contract (1)	2	2013	2	2013
Contract Awards: Early Prototype Contract (2)	2	2014	2	2014
Contract Awards: Early Prototype Contract (3)	2	2015	2	2015
Contract Awards: Early Prototype Contract (4)	2	2016	2	2016
Contract Awards: Early Prototype Contract (5)	2	2017	2	2017
Trade Studies: Trade Studies	1	2011	4	2017



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>								
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0603261N: <i>Tactical Airborne Reconnaissance</i>								
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	6.755	5.944	5.301	-	5.301	1.189	1.253	1.220	1.310	Continuing	Continuing
2467: <i>UAV Conops</i>	5.102	4.371	5.301	-	5.301	1.189	1.253	1.220	1.310	Continuing	Continuing
2910: <i>Joint Tech Center/System Integ Lab</i>	1.653	1.573	-	-	-	-	-	-	-	0.000	3.226

**A. Mission Description and Budget Item Justification**

This program element funds efforts to develop Concept of Operations in support of the Navy's overall Unmanned Aircraft System (UAS) strategy integrating UASs into the Chief of Naval Operations Navy Vision of Sea Power 21 (Sea Shield, Sea Strike, Sea Basing, and FORCEnet). Also funds Navy's contribution supporting the Joint Technology Center/System Integration Laboratory providing experimentation for Unmanned Aerial Vehicle technology assessment, insertion, demonstration, transfer, as well as simulation and exercise support.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	6.452	5.978	5.997	-	5.997
Current President's Budget	6.755	5.944	5.301	-	5.301
Total Adjustments	0.303	-0.034	-0.696	-	-0.696
• Congressional General Reductions	-	-0.034			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.350	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-0.697	-	-0.697
• Rate/Misc Adjustments	-	-	0.001	-	0.001
• Congressional General Reductions Adjustments	-0.047	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2467: <i>UAV Conops</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2467: <i>UAV Conops</i>	5.102	4.371	5.301	-	5.301	1.189	1.253	1.220	1.310	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Naval Unmanned Aircraft Systems (UAS) Strategy employs a family of UASs to perform tactical, persistent and penetrating Intelligence, Surveillance, and Reconnaissance in support of Naval and Joint missions from forward bases/platforms and naval ships.

In support of the Navy's overall UAS strategy, this program develops Concept of Operations (CONOPS) that integrate UASs into the Chief of Naval Operations Navy Vision of Sea Power 21 (Sea Shield, Sea Strike, Sea Basing, and FORCEnet). By providing fleet input based on current operations with UASs in a simulated combat environment, this CONOPS development investment is the foundation of how the Carrier Strike Group and the Expeditionary Strike Group will operate a combined Manned and Unmanned Naval Air Force. This program establishes the common architecture, including Command & Control, for all unmanned systems to support and inform CONOPS development. This effort provides for a cross-program view of Naval Unmanned Systems and is the entry point for OSD and other services for commonality and interoperability. Specifically:

- Provides studies and demonstrations in support of the Naval UAS Family of Systems (FoS) CONOPS development.
- Horizontally integrates across the Naval UAS FoS for the Naval Aviation Enterprise through interoperability and common system solutions.
- Develops the Naval UAS FoS Architecture to support integration into the Naval Unmanned Systems Cross Functional Team.
- Provides Naval support for development of Standards across Department of Defense (DoD) UASs and North Atlantic Treaty Organization, emphasizing standardization and interoperability.
- Conducts CONOPS studies, demonstrations, and exercises for Vehicle Control, Targeting, and weapons, sensor, and payload employment.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Studies and Demonstrations	0.885	0.602	0.801
<b>Articles:</b>	0	0	0
<b>Description:</b> Studies and demonstrations to develop CONOPS for manned-unmanned integration of UAS and aircraft systems. Build a UAS simulation environment for Modeling and Simulation of common UAS components in representative battlespace architectures.			
<b>FY 2011 Accomplishments:</b> Continue development of the UAS simulation environment.			
<b>FY 2012 Plans:</b> Continue development of the UAS modeling and simulation of Fleet CONOPS Scenarios.			
<b>FY 2013 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>		<b>PROJECT</b> 2467: <i>UAV Conops</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continue with ongoing FY12 efforts.				
<b>Title:</b> Shipboard CONOPS		0.500	0.500	0.500
		<b>Articles:</b> 0	0	0
<b>Description:</b> Conduct studies, demonstrations, and exercises. Validate the Naval Interoperability Profiles.				
<b>FY 2011 Accomplishments:</b> Prototyped common Naval Unmanned Systems control system architecture.				
<b>FY 2012 Plans:</b> Conduct studies, demonstrations, and exercises to validate the Naval Interoperability profiles.				
<b>FY 2013 Plans:</b> Continue with ongoing FY12 efforts.				
<b>Title:</b> Engineering and Program Support		0.904	0.881	0.924
		<b>Articles:</b> 0	0	0
<b>Description:</b> Provide government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team, OSD Unmanned Aircraft Systems (UAS) task force and other services on common UAS solutions.				
<b>FY 2011 Accomplishments:</b> Provided government engineering support, program office travel, and contract support services for OSD UAS task force and other services on common UAS solutions.				
<b>FY 2012 Plans:</b> Provide government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team, OSD UAS task force and other services on common UAS solutions.				
<b>FY 2013 Plans:</b> Provide government engineering support, program office travel, and contract support services for Naval Unmanned Systems Cross Functional Team.				
<b>Title:</b> NATO Standardization Agreements and Interoperability		1.163	1.161	1.076
		<b>Articles:</b> 0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>		<b>PROJECT</b> 2467: <i>UAV Conops</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Description:</b> Conduct Concept of Operations studies for interoperability and development of standards across Naval Unmanned Systems and NATO emphasizing standardization and interoperability. Continue to develop Unmanned System Interoperability profiles and Navy implementation conventions for Naval UAS Family of Systems Architecture.</p> <p><b>FY 2011 Accomplishments:</b> Continue Concept of Operations (CONOPS) studies for interoperability and development of standards across Naval Unmanned Systems and NATO emphasizing standardization and interoperability. Continue to develop Unmanned System Interoperability profiles and Navy implementation conventions for Naval Unmanned Aircraft Systems (UAS) Family of Systems (FoS) Architecture.</p> <p><b>FY 2012 Plans:</b> Continue development of standards across Naval Unmanned Systems and NATO emphasizing standardization and interoperability. Continue to develop Unmanned System Interoperability profiles and Navy implementation conventions for Naval UAS FoS Architecture.</p> <p><b>FY 2013 Plans:</b> Continue with ongoing FY12 efforts.</p>				
<p><b>Title:</b> Architecture Support /Common Ground Station</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Develop a Joint Service revision and configuration management of UAS interoperability profiles and Joint Common Ground Station Architecture and related government engineering support.</p> <p><b>FY 2011 Accomplishments:</b> Supported the revision and configuration management of UAS interoperability profiles and Joint Common Ground Station Architecture and related government engineering support.</p> <p><b>FY 2012 Plans:</b> Continue with ongoing FY11 efforts.</p> <p><b>FY 2013 Plans:</b> Continue with ongoing FY12 efforts.</p>		1.650 0	1.227 0	2.000 0
<b>Accomplishments/Planned Programs Subtotals</b>		5.102	4.371	5.301
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>	<b>PROJECT</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	2467: <i>UAV Conops</i>

**D. Acquisition Strategy**

The program office will leverage existing Government facilities (e.g., Joint Technology Center/System Integration Laboratory and Naval UAS Program of Record assets as available) to develop and demonstrate Naval UAS CONOPS. Government engineering support will be used for Modeling and Simulation efforts.

**E. Performance Metrics**

UAS operations and interoperability for systems delivered to the warfighter are continually improved upon increasing the level of integration, standardization and effective employment in maritime battle space dominance.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2467: <i>UAV Conops</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development	SS/FP	AAI:Hunt Valley, MD	2.800	-		-		-		-	0.000	2.800	2.800
Ship Integration	C/CPFF	L-3 Titan:Marlton, NJ	7.012	0.807	Jan 2012	1.167	Jan 2013	-		1.167	0.000	8.986	8.459
Systems Engineering	WR	NAWCAD:Pax River, MD	2.332	0.179	Dec 2011	0.424	Dec 2012	-		0.424	Continuing	Continuing	Continuing
<b>Subtotal</b>			12.144	0.986		1.591		-		1.591			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Development Support	Various	Various:Various	13.365	0.323	Jan 2012	0.280	Jan 2013	-		0.280	Continuing	Continuing	Continuing
Software Development	MIPR	JTC/SIL:Redstone Arsenal, AL	5.808	1.227	Mar 2012	2.000	Mar 2013	-		2.000	Continuing	Continuing	Continuing
Studies & Analysis	WR	NAWCWD:China Lake, CA	2.436	0.394	Dec 2011	-		-		-	Continuing	Continuing	Continuing
Studies & Analysis	WR	NAWCAD:Pax River, MD	2.981	0.178	Dec 2011	0.423	Dec 2012	-		0.423	Continuing	Continuing	Continuing
<b>Subtotal</b>			24.590	2.122		2.703		-		2.703			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Interoperability	WR	NAWCWD:China Lake, CA	2.402	0.225	Dec 2011	-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.402	0.225		-		-		-			

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2467: <i>UAV Conops</i>
---	--	---

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Government Engineering Support	Various	Various:Various	5.196	0.437	Dec 2011	0.424	Dec 2012	-		0.424	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	2.460	0.559	Dec 2011	0.533	Dec 2012	-		0.533	Continuing	Continuing	Continuing
Travel	WR	NAVAIR HQ:Pax River, MD	0.419	0.042	Nov 2011	0.050	Nov 2012	-		0.050	Continuing	Continuing	Continuing
<b>Subtotal</b>			8.075	1.038		1.007		-		1.007			

**Remarks**  
Travel contract type is TO.

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	47.211	4.371	5.301	-	5.301			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2467: <i>UAV Conops</i>
---	--	---

UAV CONOPS	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Unmanned Aircraft System (UAS) Targeting																																
Weapons and Payload Employment																																
Task and Manning Assessment																																
Standards Based Interoperability																																
UASs Family of Systems and Shipboard Interoperability																																

2013DON - 0603261N - 2467



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2467: <i>UAV Conops</i>
---	--	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>UAV CONOPS</b>				
Unmanned Aircraft System (UAS) Targeting: Unmanned Aircraft System (UAS) Targeting	1	2011	2	2011
Weapons and Payload Employment: Weapons and Payload Employment	1	2011	4	2011
Task and Manning Assessment: Task and Manning Assessment	1	2011	4	2011
Standards Based Interoperability: Standards Based Interoperability	1	2011	4	2017
UASs Family of Systems and Shipboard Interoperability: UASs Family of Systems and Shipboard Interoperability	1	2011	4	2017

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>				<b>PROJECT</b> 2910: <i>Joint Tech Center/System Integ Lab</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2910: <i>Joint Tech Center/System Integ Lab</i>	1.653	1.573	-	-	-	-	-	-	-	0.000	3.226
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Joint Technology Center/Systems Integration Laboratory (JTC/SIL) is a center of technical excellence to support Unmanned Aircraft Systems (UAS) programs within the services. The mission includes Service-specific and Joint Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance (C4ISR) programs throughout Department of Defense (DoD). JTC/SIL provides a Government test bed for interoperability, rapid prototyping, technology insertion and transition, systems engineering, modeling/simulation, training and C4ISR optimization. The cornerstone of JTC/SIL's diverse tool set is the Multiple Unified Simulation Environment (MUSE), which is the DoD's simulation/training system of choice for many UAS and Intelligence Surveillance and Reconnaissance (ISR) systems, and to some degree, surrogate UAS ground stations, when actual UAS ground stations are unavailable.

The Services and Warfighting Commanders have a requirement for the capability to train with a system that provides a real-time simulation environment containing multiple intelligence systems that can be integrated with larger force-on-force simulations. The MUSE creates a realistic operational environment which supports the ability to assess military utility, architecture and Concept of Operations development, and Tactics, Techniques, and Procedures refinement, conduct emerging concepts experimentation, and optimize C4ISR within warfighting exercises and experiments. It is the preferred simulation system used by the Combat Commanders and Joint Services to support command and battle staff C4ISR training, there is no better alternative to satisfy those requirements.

The MUSE also creates a realistic operational environment that supports: an embedded training capability for multiple Program Managers, tools to minimize acquisition and life cycle cost and schedule impacts, the ability to conduct emerging concepts experimentation, future systems exploration, systems integration, and technology insertion, applications for Joint and Service-specific warfighting exercises and C4ISR optimization.

MUSE is currently in use within all services and most unified commands simulating Predator, Global Hawk (RQ-4), Extended Range Multi-Purpose, Hunter, and Shadow (RQ-7) UAS, national and commercial satellite collectors, P-3, Joint Surveillance Target Attack Radar, and the U-2. During warfighting exercises, the JTC/SIL integrates imagery simulations with associated C4ISR systems to support execution of critical imagery processes. For those assets normally not available for training, the JTC/SIL provides surrogate systems and interfaces. Distributed training environments, virtually linking participants from various locations worldwide, are routinely supported within the MUSE architecture. The MUSE is also used as a mission rehearsal tool for current, on-going military combat operations.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> MUSE Development	0.779	0.777	-
<b>Articles:</b>	0	0	

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2910: <i>Joint Tech Center/System Integ Lab</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Description:</b> Multiple Unified Simulation Environment (MUSE) creates a realistic operational environment which supports the ability to assess military utility, architecture and Concept of Operations development, Tactics, Techniques, and Procedures refinement, conduct emerging concepts experimentation, and Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance optimization within warfighting exercises and experiments.</p> <p><b>FY 2011 Accomplishments:</b> Developed multi-echelon MUSE Unmanned Aircraft System and manned Intelligence, Surveillance, and Reconnaissance integrated training environments that incorporate command and staff and initial qualification and proficiency trainers. Maintained MUSE simulation capability to support major exercises and demonstrations. Continued development of Laser Designator, Laser Range finding, Autotrack, Weaponization, enhanced Synthetic Aperture Radar, and Ground Moving Target Indicator capability. Upgraded National Space Assets enhancements, Command, Control, Communications, Computers and Intelligence enhancements, and enhancements to the Vignette Planning and Rehearsal Software.</p> <p><b>FY 2012 Plans:</b> Continues those efforts ongoing but not yet completed from FY11.</p>				
<p><b>Title:</b> Engineering and Maintenance</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Maintenance, Licenses and Equipment Purchases to include the day-to-day maintenance of laboratory equipment, license maintenance and license renewals from vendors for individual pieces of equipment, purchases of equipment to support the MUSE, and purchases to upgrade the MUSE capability.</p> <p><b>FY 2011 Accomplishments:</b> Provided for the continued maintenance and required equipment purchases and upgrades to support the MUSE.</p> <p><b>FY 2012 Plans:</b> Continues the maintenance and upkeep of the MUSE facility.</p>		0.500 0	0.500 0	-
<p><b>Title:</b> Program Management</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Includes government management, contracts administration, cost accounting, configuration management, laboratory administrative support, Multiple Unified Simulation Environment architecture development, property management/accountability, and equipment procurement.</p> <p><b>FY 2011 Accomplishments:</b></p>		0.374 0	0.296 0	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2910: <i>Joint Tech Center/System Integ Lab</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Provided for the continued Laboratory Sustainment with government management and overhead support services, architecture development and equipment purchases.</p> <p><b>FY 2012 Plans:</b> Continues Laboratory Sustainment with government management and overhead support services, architecture development and equipment purchases.</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		1.653	1.573	-
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>D. Acquisition Strategy</b>				
Established for the DoD family of Unmanned Aircraft Systems (UAS) as a center of technical excellence for tactical, medium altitude endurance and future UASs to provide a cost-effective testbed for UAS technology assessment, insertion, demonstration, and transfer. Joint Technology Center/Systems Integration Laboratory (JTC/SIL) technical experts serve as facilitators of action for Program Executive Offices and UAS Program Managers as well as the respective users and prime contractors.				
<b>E. Performance Metrics</b>				
Improve the assessment of military utility, Tactics, Techniques and Procedures and Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance optimization through realistic training of command and battle staffs.				

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2910: <i>Joint Tech Center/System Integ Lab</i>
---	--	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	MIPR	JTC/SIL:Redstone Arsenal, AL	2.622	1.277	Mar 2012	-		-		-	0.000	3.899	
<b>Subtotal</b>			2.622	1.277		-		-		-	0.000	3.899	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	MIPR	JTC/SIL:Redstone Arsenal, AL	0.742	0.296	Dec 2011	-		-		-	0.000	1.038	
<b>Subtotal</b>			0.742	0.296		-		-		-	0.000	1.038	

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			3.364	1.573		-		-		-	0.000	4.937	

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2910: <i>Joint Tech Center/System Integ Lab</i>
---	--	---

Joint Tech Center/System Integ Lab	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Multiple Unified Simulation Environment Support to Unmanned Aircraft System Developers																																

2013PB - 0603261N - 2910

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603261N: <i>Tactical Airborne Reconnaissance</i>	<b>PROJECT</b> 2910: <i>Joint Tech Center/System Integ Lab</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Joint Tech Center/System Integ Lab</b>				
Multiple Unified Simulation Environment Support to Unmanned Aircraft System Developers: Simulation Support	1	2011	4	2012

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603382N: <i>Advanced Combat Systems Tech</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	1.613	1.418	1.506	-	1.506	1.571	1.733	1.762	1.793	Continuing	Continuing
0324: <i>Adv Combat System Technology</i>	1.613	1.418	1.506	-	1.506	1.571	1.733	1.762	1.793	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Advanced Combat System Technology line is to evolve the technical and business practices for programs to change to an open architecture construct. The program was constructed to mature both technical and business model integration for C5I systems programs of record in an open architecture environment. The priority was incorporating the principles of modular design and design disclosure, reusable application software, interoperability and secure information exchange, lifecycle affordability and encouraging competition and collaboration.

Project Unit 0324: Funding is to maintain and update a repository environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS is assigned overall responsibility and authority to direct the Navy's OA effort. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603382N: <i>Advanced Combat Systems Tech</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	1.658	1.418	1.511	-	1.511
Current President's Budget	1.613	1.418	1.506	-	1.506
Total Adjustments	-0.045	-	-0.005	-	-0.005
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.037	-			
• Rate/Misc Adjustments	-	-	-0.005	-	-0.005
• Congressional General Reductions Adjustments	-0.008	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0324: <i>Adv Combat System Technology</i>	1.613	1.418	1.506	-	1.506	1.571	1.733	1.762	1.793	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Project Unit 0324: Funding is to maintain and update a repository environment to improve transparency of design disclosure and information exchange on past and current investments to support the principle of cross-program reuse, and to provide the tools and leadership for assisting programs through the transition to Naval Open Architecture (OA). The other elements of the OA transformation effort are being realized as management efficiencies within programs. Those elements include ensuring that all naval systems, families of systems, and programs move to modular OA in accordance with Department of Defense (DoD) Instruction 5000.1 dated 12 May 2003 which mandates that all DoD programs utilize open systems architectures to rapidly field affordable and interoperable systems. By direction of the Navy Service Acquisition Executive (SAE), PEO IWS is assigned overall responsibility and authority to direct the Navy's OA effort. That policy established a need to coordinate acquisition strategies, develop guidance and tools, and develop analysis of alternatives to determine OA software reuse practices within and across the Navy Communities of Interest (COI - Surface, Subsurface, Air, Space, C4I, USMC, and ONR). This project facilitates a strategic shift in the acquisition business process to facilitate cooperative competition in cross-domain/COI business relationships. This improves innovation and economies of scale throughout the Navy and Marine Corps. This leadership effort has identified the business case and potential return on investment for moving the Navy towards an open systems approach, supported the development of open systems technologies, and integrated best business and technical practices for open systems development within Naval acquisition. Naval OA ensures Navy-wide system architectures become extensible and scalable in function, capacity, and workload to meet Joint warfighting requirements. This also includes the identification and development of common software components, functions, reuse methodologies, and extensible product lines. In summary, this funding supports the management of a reuse repository and reuse information exchange portal, and the evolving business, systems engineering, and cultural changes required across all Naval programs as they migrate to function in a Joint, net-centric warfare environment.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Align the Naval Enterprise Across All Domains to Implement OA	0.200	0.150	0.150
<b>Articles:</b>	0	0	0

**FY 2011 Accomplishments:**

OA Enterprise Alignment: This funding supported the preparation and execution of the updated Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN RD&A) Naval OA Policy and the subsequent update and execution of the Naval OA Strategy, including quarterly OA Enterprise Team (OAET) Lead Council meetings and reporting requirements of the OAET. Specifically, this includes OAET reporting of action items to Deputy Assistant Secretary of the Navy (DASN), quarterly OA Report to Congress, as well as the annual OA budget submission and financial reporting for this project. Alignment across the Naval Enterprise also includes the development and management of all other activities as the Lead Council directs. During FY 11, the asset repository SHARE II (Software Hardware Asset Reuse Enterprise, version 2), was upgraded from a low-activity repository

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>of selected assets for which the Navy owned Government Purpose Rights (GPR), to a vibrant information exchange portal where Program Managers can discover and make use of existing DoD investments within the normal operating parameters of the marketplace. Additionally, as a leader of the Office of the Secretary of Defense's 'Better Buying Power' initiative, this funding paid to investigate and promulgate the true nature and proper application of government rights and responsibilities concerning industry's intellectual property rights, develop business case analysis rules for OA, and development of a DoD OA Contract Management Guidebook.</p> <p><b>FY 2012 Plans:</b> OA Enterprise Alignment: This funding supports the maintenance and execution of the Naval OA Policy and Strategy, including quarterly OAET Lead Council meetings and reporting requirements. Specifically, this includes OAET reporting of action items to DASN, quarterly OA Report to Congress, as well as the annual OA budget submission and financial reporting for this project. Alignment across the Naval Enterprise also includes the development and management of all other activities as the Lead Council directs. Specific goals for FY 12 include development of OA product line pilot projects, publication of a Program Manager's OA Handbook, and re-establishment of the OPNAV OA Cross-Functional Board to facilitate discussions on aligning OA requirements and resources.</p> <p><b>FY 2013 Plans:</b> OA Enterprise Alignment: This funding supports the maintenance and execution of the Naval OA Policy and Strategy, including quarterly OAET Lead Council meetings and reporting requirements. Specifically, this includes OAET reporting of action items to DASN, quarterly OA Report to Congress, as well as the annual OA budget submission and financial reporting for this project. Alignment across the Naval Enterprise also includes the development and management of all other activities as the Lead Council directs.</p>				
<p><b>Title:</b> Change the Naval and Marine Corps Cultures to Institutionalize OA Principle</p> <p><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> OA Enterprise Communications and Training: This funding supported the activities to enable the cultural adoption of OA principles and practices through stakeholder management, communications, and training. Key activities include the development of a new OA Contracting course, continued education of program office and contract management personnel on OA principles and business and technical methodologies, and numerous one-on-one sessions with DoD and Department of the Navy (DON) leadership personnel. This included participation, liaison, and coordination with multiple stakeholders including the DON Chief Information Officer (CIO), Naval Postgraduate School, symposia and panels to discuss OA implementation, and use of other communication vehicles to promulgate OA standards and methodologies for inclusion into Naval systems acquisition. Developed a draft Program Manager's OA Handbook to share information and guidance on managing an open program.</p> <p><b>FY 2012 Plans:</b></p>		0.317 0	0.300 0	0.311 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>OA Enterprise Communications and Training: This funding supports the activities to enable the cultural adoption of OA principles and practices through stakeholder management, communications, and training. Key activities include reorganization and update to Defense Acquisition University online OA training modules, presentation of existing training courses, and participation in symposia and panels to discuss OA implementation, and use of other communication vehicles to promulgate OA standards and methodologies for inclusion into Naval systems acquisition.</p> <p><b>FY 2013 Plans:</b> OA Enterprise Communications and Training: This funding supports the activities to enable the cultural adoption of OA principles and practices through stakeholder management, communications, and training. Key activities include maintenance of Defense Acquisition University online OA training modules, presentation of existing training courses, and participation in symposia and panels to discuss OA implementation, and use of other communication vehicles to promulgate OA standards and methodologies for inclusion into Naval systems acquisition.</p>				
<p><b>Title:</b> OA Systems Engineering Leadership</p> <p align="right"><b>Articles:</b></p>		0.440 0	0.368 0	0.350 0
<p><b>FY 2011 Accomplishments:</b> Systems Engineering: This funding provided OA Systems Engineering Leadership to a) perform Maintenance Free Operating Period (MFOP) pilot study (primarily funded via Congressional Add) lifecycle alternative cost analysis, capture MFOP lessons learned and participate in publishing a report, identify methods to extend MFOP principles to other Naval programs; b) analyze existing Information Assurance and Offboard Vehicle Control programs from which to develop proposed OA product lines and produce the presentation given to OA Lead Council in April 2011; c) publish a study on OA Product Lines, extending the Carnegie Mellon University's Software Engineering Institute systems engineering practices with reuse and cost savings to the Naval environment; and d) provide OA Systems Engineering expertise to the Maritime Theater Missile Defense (MTMD) Forum to ensure the delivery of open and interoperable solutions to the MTMD Integrated Air and Missile Defense enterprise.</p> <p><b>FY 2012 Plans:</b> Systems Engineering: This funding supports systems engineering collaboration across the Naval Enterprise to facilitate the fielding of interoperable capabilities, including a) the further alignment of PEO architectures; b) providing guidance to Technical Warrant Holders who oversee OA implementation efforts to ensure standardized and disciplined processes, interfaces, and services are utilized; c) working with the Science and Technology (S&amp;T) community to ensure OA is incorporated into emerging technologies; and d) working with the Test and Evaluation (T&amp;E) community, academia, and industry partners to identify opportunities to reduce T&amp;E expenses as a result of OA.</p> <p><b>FY 2013 Plans:</b> Systems Engineering: This funding supports systems engineering collaboration across the Naval Enterprise to facilitate the fielding of interoperable capabilities, including a) the further alignment of PEO architectures; b) providing guidance to Technical</p>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Warrant Holders who oversee OA implementation efforts to ensure standardized and disciplined processes, interfaces, and services are utilized; c) working with the Science and Technology (S&T) community to ensure OA is incorporated into emerging technologies; and d) working with the Test and Evaluation (T&E) community, academia, and industry partners to identify opportunities to reduce T&E expenses as a result of OA.				
<b>Title:</b> Change Naval Processes and Business Practices		0.656	0.600	0.695
		0	0	0
<b>Articles:</b>				
<b>FY 2011 Accomplishments:</b> Naval Business Practices: This funding supported changing software reuse Naval Business Practices including a) development, socialization, and publication of OA Rules for inclusion in the Department of the Navy (DON) Chief Information Officer's DON Enterprise Architecture (EA) Compliance Process; b) maintenance and administration of the OA Software Hardware Asset Reuse Enterprise (SHARE) repository; and c) publication of Version 3.0 of the OA Contract Guidebook for Program Managers before transitioning this product to the DoD OA Team for issuance as a Joint Guidebook. This funding also supported changing Naval Processes through a) development of draft OA policies for the Navy, for the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN RD&A), and multiple Program Executive Offices; and b) development and promulgation of a Business Case Analysis Guide for OA Decision Making.				
<b>FY 2012 Plans:</b> Naval Business Practices: This funding supports changing software reuse Naval Business Practices including a) the development and refinement of policies, guidance, and terminology required to establish a consistent approach for OA across the Enterprise; b) the development and maintenance of analytical toolsets to assist Milestone Decision Authorities, Program Managers, and Resource Sponsors in assessing program openness and making informed OA investment decisions; and c) the facilitation of design disclosure, information sharing, and cross-domain component reuse to reduce costs and enable more effective technology insertion, including the administration of the OA Software Hardware Asset Reuse Enterprise (SHARE) repository capability.				
<b>FY 2013 Plans:</b> Naval Business Practices: This funding supports changing software reuse Naval Business Practices including a) the development and refinement of policies, guidance, and terminology required to establish a consistent approach for OA across the Enterprise; b) the development and maintenance of analytical toolsets to assist Milestone Decision Authorities, Program Managers, and Resource Sponsors in assessing program openness and making informed OA investment decisions; and c) the facilitation of design disclosure, information sharing, and cross-domain component reuse to reduce costs and enable more effective technology insertion, including the administration of the OA Software Hardware Asset Reuse Enterprise (SHARE) repository capability.				
<b>Accomplishments/Planned Programs Subtotals</b>		1.613	1.418	1.506

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>
---	--	---

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• R&D/0604307N /1447: <i>AEGIS Surf Combatant Combat Sys Imp</i>	195.569	223.217	260.217	0.000	260.217	253.166	226.221	263.670	142.545	Continuing	Continuing
• R&D/0604755N /2178: <i>Ship Self Defense System</i>	35.754	64.360	81.106	0.000	81.106	60.922	50.497	48.118	49.054	Continuing	Continuing
• R&D/0603658N /2039: <i>Cooperative Engagement Capability</i>	57.198	54.783	56.512	0.000	56.512	71.776	64.469	86.867	77.385	Continuing	Continuing

**D. Acquisition Strategy**

This risk reduction effort evolved and shifted from a PEO IWS 1.0 task to Naval Surface Warfare Center (NSWC)/Dahlgren to an Assistant Secretary of the Navy, Research, Development & Acquisition (ASN-RDA) directed task to fund the Navy's OA Enterprise effort from this core OA. Budget line (policy statement dated 5 August 2004). The strategy was further refined in the Deputy Chief of Naval Operations (DCNO) requirement of 23 December 2005 (N6/7) with guidance for this effort to assist the Milestone Decision Authority (MDA), program managers, and resource sponsors in assessing enterprise program assets where appropriate. Office of the Chief of Naval Operations (OPNAV) has directed this program to provide objective, measurable, performance based assessments as Business Case Analysis (BCA) baselines for future system changes and spiral developments.

**E. Performance Metrics**

Change Naval Processes and business practices to cost-effectively innovate and deploy improved warfighting capability based on fleet requirements. Provide OA Systems Engineering to field common, interoperable capabilities; Change Navy and Marine Corps Business Cultures to Institutionalize OA Principles.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SE/OA Domain Support	C/FP	APL:Baltimore, MD	0.725	-		-		-		-	0.000	0.725	Continuing
Systems Engineering	WR	NSWC / Dahlgren:Dahlgren, VA	12.658	0.300	Jan 2012	0.695	Oct 2012	-		0.695	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CRANE, Carderock, DISA:VARIOUS	2.062	0.300	Feb 2012	0.060	Oct 2012	-		0.060	0.000	2.422	Continuing
Systems Engineering	C/CPAF	ASSETT; Lockheed Martin, NJ; Gartner, VA:Washington DC	4.859	0.261	Feb 2012	-		-		-	0.000	5.120	Continuing
OA DOMAIN SUPPORT	WR	NUWC/Newport, Spawar, Navair:VARIOUS	11.931	-		-		-		-	0.000	11.931	Continuing
SE/Signal Processor	C/CPAF	Lockheed Martin:VARIOUS	6.000	-		-		-		-	0.000	6.000	Continuing
SE/Signal Processor	C/CPAF	BAE:VARIOUS	0.300	-		-		-		-	0.000	0.300	Continuing
SE/Signal Processor	C/CPAF	Raytheon:VARIOUS	0.100	-		-		-		-	0.000	0.100	Continuing
SE/Signal Processor	WR	NSWC/DD, NRL, PHD:VARIOUS	0.600	-		-		-		-	0.000	0.600	Continuing
<b>Subtotal</b>			39.235	0.861		0.755		-		0.755			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Industry Development	C/FP	IBM, ANGLE:VARIOUS	8.856	0.557	Feb 2012	0.300	Nov 2012	-		0.300	0.000	9.713	Continuing
Technical Data-Academia	WR	NPS-Monterey/ DAU:MONTEREY, CA	1.876	-		-		-		-	0.000	1.876	Continuing
Software Development	C/FP	MITRE, SEI, Trident, ASSETT:VARIOUS	0.309	-		0.451	Nov 2012	-		0.451	0.000	0.760	Continuing
<b>Subtotal</b>			11.041	0.557		0.751		-		0.751	0.000	12.349	





**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>
---	--	---

Fiscal Year	2011				2012				2013				2014				2015				2016				2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Acquisition Milestones</b>																												
<b>Incorporate OA Principles in Strategies, Contracts, Reviews, Requirements, &amp; Other Documentation</b>	△		△		△		△		△		△		△		△		△		△		△		△		△		△	
<b>Change Culture through OA Education, Outreach and Training</b>	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
<b>Conduct Program Assessments</b>		△				△				△				△				△				△				△		
<b>Adapt ONR Technologies</b>	△		△		△		△		△		△		△		△		△		△		△		△		△		△	
<b>Publish Contract Guidebook Update</b>							△							△								△						
<b>Host OA Symposium</b>				△				△				△				△				△				△				△
<b>Deliver Report to Congress</b>	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△
<b>Host OA Lead Council Meetings</b>	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603382N: <i>Advanced Combat Systems Tech</i>	<b>PROJECT</b> 0324: <i>Adv Combat System Technology</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0324</b>				
Incorporate OA Principles in Acquisition Strategies and Contracts	1	2011	3	2017
Change Culture through OA Education, Outreach and Training	1	2011	4	2017
Conduct Program Assessments	2	2011	2	2017
Adapt ONR Technologies	1	2011	3	2017
Publish Contract Guidebook Update	3	2012	3	2016
Host Contracting/Industry Symposium	4	2011	4	2017
Deliver Report to Congress	1	2011	4	2017
Host OA Lead Council Meeting	1	2011	4	2017

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	94.539	127.757	190.622	-	190.622	147.397	121.349	80.049	69.970	Continuing	Continuing
0260: <i>Remote Minehunting Systems</i>	23.941	41.143	39.094	-	39.094	32.004	23.862	18.739	18.759	Continuing	Continuing
1233: <i>Surface MCM Mid-life Upgrade</i>	28.397	25.593	33.690	-	33.690	26.995	22.675	19.524	19.851	Continuing	Continuing
2094.: <i>Unmanned Underwater Vehicle</i>	-	-	36.773	-	36.773	8.816	13.736	1.825	0.835	Continuing	Continuing
2131: <i>Assault Breaching System</i>	29.884	49.200	59.648	-	59.648	65.565	46.874	33.631	24.448	Continuing	Continuing
3123: <i>SMCM UUV</i>	12.269	11.821	21.417	-	21.417	14.017	14.202	6.330	6.077	Continuing	Continuing
4025: <i>Expendable Mine Neutralization System</i>	0.048	-	-	-	-	-	-	-	-	0.000	0.048

**A. Mission Description and Budget Item Justification**

The program provides for developments to combat the threat of known and projected foreign mines against U.S. Naval and merchant shipping in harbors, channels, choke points, sea lines of communications and amphibious and other fleet operating areas. It develops: (1) organic remote minehunting capability for surface platforms; (2) the integration and improvement of systems and support for systems which will detect, localize, classify, and neutralize moored, bottom, and close-tethered mines for use in Mine Countermeasure (MCM) MCM-1 Class and other surface ships; (3) systems for neutralizing mines and light obstacles from shallow water, very shallow water, surf zones, and beach landing craft zones in support of amphibious operations; (4) the integration of Unmanned Undersea Vehicles (UUVs) to provide undersea surveillance capability.

**JUSTIFICATION FOR BUDGET ACTIVITY:**

This program is funded under DEMONSTRATION AND VALIDATION because it develops and integrates hardware for experimental testing related to specific ship or aircraft applications.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>
---	---

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	81.347	142.657	150.032	-	150.032
Current President's Budget	94.539	127.757	190.622	-	190.622
Total Adjustments	13.192	-14.900	40.590	-	40.590
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-14.900			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	18.400	-			
• SBIR/STTR Transfer	-2.705	-			
• Program Adjustments	-	-	40.871	-	40.871
• Rate/Misc Adjustments	-	-	-0.281	-	-0.281
• Congressional General Reductions Adjustments	-0.403	-	-	-	-
• Congressional Directed Reductions Adjustments	-2.100	-	-	-	-

**Change Summary Explanation**

Program Adjustments:

FY12 -\$14,900 in Congressional Reductions for Program Execution (-\$8,900) and UUV program delay (-\$6,000).

FY13 \$40,590K in Total Program Adjustments for Mine Neutralization System (MNS)(\$7,600K), MEDAL EA/Improved Interoperability (\$2,000K), Persistent Littoral Undersea Surveillance (PLUS) (\$22,000K), Assault Breaching System (ABS) funding (\$3,000K), LDUUV Realignment (\$7,000K), Speed to Fleet R&D Initiatives (\$8,000), Mine Neutralization Replacement (-\$4,000) and Under Execution of R&D Programs (-4,188K). Miscellaneous Adjustments: FY13 -\$822K in total adjustments.

FY12 Congressional reduction for Program Execution (\$8.9M) is shown as a reduction to project 0260, Remote Minehunting System. After further review of the Congressional action, the Navy has determined that Congressional intent was to apply the reduction to project 1233, Surface MCM Mid-life Upgrade (-\$3.045M) and project 2131, Assault Breaching System (-\$5.855M). The Navy will make this adjustment during FY12 execution and the change will be reflected in future budget submissions.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>				<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0260: <i>Remote Minehunting Systems</i>	23.941	41.143	39.094	-	39.094	32.004	23.862	18.739	18.759	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Under Secretary of Defense, (USD, AT&L) Nunn-McCurdy Certification Acquisition Decision Memorandum (ADM) for the Remote Minehunting Systems (RMS) dated 1 June, 2010 recertified and restructured the RMS Program. The Director, Cost Assessment and Program Evaluation (D, CAPE) approved the acquisition cost estimate for the restructured RMS program support and Remote Multi-Mission Vehicle (RMMV) Reliability Growth Program (RGP).

The AN/WLD-1(V)2 RMS is a mine reconnaissance system designed for the detection, classification, identification, and localization of bottom and moored targets in shallow and deep water. RMS is a fully integrated system consisting of a semi-submersible Remote Multi-Mission Vehicle (RMMV) carrying a towed variable depth sensor. Line-Of-Sight (LOS) and Over-The-Horizon (OTH) telemetry provides vehicle Command and Control and mine reconnaissance sensor data transmission to/from a system aboard a Navy ship. RMS will provide the Navy the capability to keep ships and sailors out of the minefield. Current intentions call for the RMS to be deployed on the Littoral Combat Ship as part of the ships' Mine Countermeasures (MCM) Mission Package. As part of the MCM Mission Package, the current configuration of the RMS calls for the RMMV to be combined with the AN/AQS-20A Sonar, Mine Detecting Set. For the purposes of Initial Operational Testing & Evaluation (IOT&E) for this program the AN/AQS-20A and other items will be provided as Government Furnished Equipment (GFE) to allow testing of the RMMV in its deployed state.

Footnote: FY12 Congressional reduction for Program Execution (\$8.9M) is shown as a reduction to project 0260, Remote Minehunting System. After further review of the Congressional action, the Navy has determined that Congressional intent was to apply the reduction to project 1233, Surface MCM Mid-life Upgrade (-\$3.045M) and project 2131, Assault Breathing System (-\$5.855M). The Navy will make this adjustment during FY12 execution and the change will be reflected in future budget submissions.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Product Development:	13.191	15.087	17.888
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
Conducted system testing, as part of the RMMV Reliability Growth Program. Conducted Critical System Reviews (CSR) I and II and Design Review I. Defined modifications to system design to improve reliability. Completed initial RGP V4.2 failure modes review. Commenced V4.1 Offshore Testing.			
<b>FY 2012 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>		<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	
<p>Complete V4.1 system testing, as part of the RMMV Reliability Growth Program, including CSR Phase II, V4.2 implementation, supply support and certification. Conduct Design Review II. Continue with hardware and software failure mode resolutions. Define and implement additional modifications for reliability. Develop an updated Technical Data Package (TDP) for V4.2.</p> <p><b>FY 2013 Plans:</b> Complete V4.2 system testing, as part of the RMMV Reliability Growth Program, including CSR Phase II and V4.3 implementation, supply support and certification. Continue with hardware and software failure mode resolutions. Define and implement additional modifications for reliability. Develop an updated Technical Data Package (TDP) for V4.3.</p> <p><b>Title:</b> Support:</p>					
		<b>Articles:</b>	3.000 0	7.840 0	7.215 0
<p><b>FY 2011 Accomplishments:</b> Provided engineering, logistic and programmatic support for RMMV RGP and confidence testing. Commenced comprehensive review of RMMV support aboard LCS 1 and 2.</p> <p><b>FY 2012 Plans:</b> Provide engineering, logistic and programmatic support for RMMV RGP and confidence testing, as well as reliability modeling. Define maintenance and support improvements to better maintain the RMS onboard LCS. Sandia National Labs providing reliability engineering support, modeling reliability, and reliability test support.</p> <p><b>FY 2013 Plans:</b> Provide engineering, logistic and programmatic support for RMMV RGP and confidence testing, as well as reliability modeling. Conduct Physical Configuration Audit (PCA). Sandia National Labs providing reliability engineering support, modeling reliability, and reliability test support.</p>					
		<b>Articles:</b>	7.250 0	17.171 0	13.093 0
<p><b>Title:</b> T&amp;E:</p> <p><b>FY 2011 Accomplishments:</b> Conducted component and system testing in support of the RGP. Conducted dockside and offshore testing for first increment of system upgrades/modification.</p> <p><b>FY 2012 Plans:</b> Conduct component and system testing in support of the RGP, including reliability confidence and performance testing. Perform integration testing and certification of software changes. Complete dockside and offshore testing for V4.1 of system upgrades/modification.</p> <p><b>FY 2013 Plans:</b></p>					



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Conduct component and system testing in support of the RGP, including reliability confidence and performance testing. Perform integration testing and certification of software changes. Complete dockside and offshore testing for V4.2 increments of system upgrades/modification. Prepare for and conduct Developmental Testing (DT) and prepare for Operational Assessment (OA).			
<b>Title:</b> Management:	0.500	1.045	0.898
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Provided program management and travel for RMMV RGP Basic Ordering Agreement (BOA). Delivery Order 03 awarded. Integrated Baseline Review completed with LM. Established high level IPTs to provide program guidance and direction. Updated and modified management processes to better focus programmatic efforts. Complete 2366B Certification documentation.			
<b>FY 2012 Plans:</b> Provide program management and travel for RMMV V4.1 and V4.2 testing. Conduct a Business Case Analysis for Full and Open Competition for the RMS Program Full Rate Production. Prepare for and conduct the Overarching Integrated Product Team (OIPT) and Defense Acquisition Board (DAB) In-Process Review (IPR) currently planned for 2nd QTR FY12. Maintain oversight of the RGP and RMMV vehicle upgrades and testing.			
<b>FY 2013 Plans:</b> Provide program management and travel for RMMV V4.2 testing. Prepare for and conduct the OIPT/V4.2 Gate Review currently planned for 2nd QTR FY13. Maintain oversight of the RGP and RMMV vehicle upgrades and testing. Develop documentation in support of Milestone C.			
<b>Accomplishments/Planned Programs Subtotals</b>	23.941	41.143	39.094

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2622: <i>Minesweeping System Replacement</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing
• OPN/1600: <i>LCS Modules</i>	0.000	0.000	0.000	0.000	0.000	0.000	33.299	61.050	58.605	Continuing	Continuing

**D. Acquisition Strategy**  
At the conclusion of the Nunn-McCurdy certification process, an Acquisition Decision Memorandum (ADM) dated 01 Jun 2010 was issued by USD (AT&L) rescinding Milestone (MS) C and declaring the program as being post-MS B. A Reliability Growth Program is currently being conducted in accordance with the Acquisition Strategy that was approved September 2011. A DAB IPR will be conducted in 2nd QTR FY12. Acquisition Strategy for the program is to conduct DT in FY13 and an OA in FY14 based on the RGP. The remaining RMMV vehicles will be upgraded by a separate contract action. MS C will be conducted in 3rd QTR FY14. A Low Rate Initial

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	0260: <i>Remote Minehunting Systems</i>

Production (LRIP) contract is planned to be awarded based on full and open competition in 4th QTR FY14. This contract will have an option for full rate production planned to be awarded in 4th QTR FY17. DT/Operational Testing (OT) will be conducted on the LRIP systems in early FY17. Exercise of that full rate production option will be based on a Full Rate Production Decision Review (FRPDR) planned for 4th QTR FY17.

**E. Performance Metrics**

- Obtained Final Nunn-McCurdy/2366b Certification
- Award RGP Completion Contract
- Conduct DAB IPR
- Award RMMV Upgrade Contract
- Complete RGP
- Complete DT /OA based on RGP FY14
- Award LRIP contract with Option for Full Rate Production MS C FY14
- Complete DT/OT based on LRIP early FY17
- FRPDR FY17

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Hardware Development & Integration 1	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	97.283	12.344	Oct 2011	15.601	Oct 2012	-		15.601	Continuing	Continuing	Continuing
Hardware Development & Integration 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	95.993	-		-		-		-	0.000	95.993	
Hardware Development & Integration	WR	NSWC, PC: PANAMA CITY, FL	7.140	2.743	Oct 2011	2.287	Oct 2012	-		2.287	Continuing	Continuing	Continuing
Systems Engineering 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	5.465	-		-		-		-	0.000	5.465	
Systems Engineering 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	16.211	-		-		-		-	Continuing	Continuing	Continuing
Systems Engineering 3	WR	NSWC, PC: PANAMA CITY, FL	5.294	-		-		-		-	Continuing	Continuing	Continuing
Award Fees	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	5.485	-		-		-		-	0.000	5.485	
<b>Subtotal</b>			232.871	15.087		17.888		-		17.888			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Software Development 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	7.092	-		-		-		-	0.000	7.092	
Software Development 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	6.961	-		-		-		-	0.000	6.961	
Software Development 3	WR	NSWC, PC: RIVIERA BEACH, FL	2.142	-		-		-		-	0.000	2.142	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>
---	---	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ILS 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	17.836	-		-		-		-	0.000	17.836	
ILS 2	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	2.000	-		-		-		-	Continuing	Continuing	Continuing
Engineeing Support/ILS 3	WR	NSWC, PC: PANAMA CITY, FL	5.057	3.350	Oct 2011	3.800	Oct 2012	-		3.800	Continuing	Continuing	Continuing
ILS 4	WR	VARIOUS:VARIOUS	1.125	-		-		-		-	0.000	1.125	
Ship Integration 1	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	1.258	-		-		-		-	0.000	1.258	
Ship Integration 2	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	11.938	-		-		-		-	0.000	11.938	
Ship Integration 3	Various	VARIOUS:VARIOUS	13.714	-		-		-		-	0.000	13.714	
Engineering Support	WR	NSWC Corona:Corona, CA	-	0.110	Oct 2011	0.110	Oct 2012	-		0.110	Continuing	Continuing	Continuing
Engineering Support	WR	NUWC, NPT:Newport, RI	-	1.789	Oct 2011	0.680	Oct 2012	-		0.680	Continuing	Continuing	Continuing
Engineering Support	WR	NUWC, KPT:Keyport, WA	-	0.615	Oct 2011	0.623	Oct 2012	-		0.623	Continuing	Continuing	Continuing
ILS Support	WR	NAWCAD:Patuxent, MD	-	0.312	Oct 2011	0.316	Oct 2012	-		0.316	Continuing	Continuing	Continuing
Engineering Support	WR	NSWC Carderock:Carderock, MD	-	0.453	Oct 2011	0.459	Oct 2012	-		0.459	Continuing	Continuing	Continuing
Sandia labs - Reliability Engineering	WR	NSWC, PC: PANAMA CITY, FL	-	1.211	Oct 2011	1.227	Oct 2012	-		1.227	Continuing	Continuing	Continuing
<b>Subtotal</b>			69.123	7.840		7.215		-		7.215			

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>
---	---	---

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation 1	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	18.470	-		-		-		-	0.000	18.470	
Developmental Test & Evaluation 2	SS/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	27.671	16.867	Oct 2011	12.785	Oct 2012	-		12.785	Continuing	Continuing	Continuing
Developmental Test & Evaluation 3	WR	NSWC, PC: PANAMA CITY, FL	13.994	-		-		-		-	0.000	13.994	
Developmental Test & Evaluation 4	WR	COTF: NORFOLK, VA	0.300	0.304	Oct 2011	0.308	Oct 2012	-		0.308	Continuing	Continuing	Continuing
Developmental Test & Evaluation 5	WR	VARIOUS: VARIOUS	5.298	-		-		-		-	0.000	5.298	
<b>Subtotal</b>			65.733	17.171		13.093		-		13.093			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPIF	LOCKHEED MARTIN:RIVIERA BEACH, FL	6.569	-		-		-		-	0.000	6.569	
Government Engineering Support1	WR	NSWC, PC: PANAMA CITY, FL	22.996	-		-		-		-	0.000	22.996	
Government Engineering Support2	WR	NSWC, PC: PANAMA CITY, FL	0.237	-		-		-		-	0.000	0.237	
Program Management Support	C/CPFF	CACI: WASHINGTON, DC	4.358	1.000	Oct 2011	0.853	Oct 2012	-		0.853	Continuing	Continuing	Continuing
Travel	WR	NAVSEA: WNY, DC	0.666	0.045	Oct 2011	0.045	Oct 2012	-		0.045	Continuing	Continuing	Continuing
SBIR Assessment	WR	VARIOUS: VARIOUS	7.161	-		-		-		-	0.000	7.161	
<b>Subtotal</b>			41.987	1.045		0.898		-		0.898			

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>				<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>				
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	409.714	41.143		39.094		-		39.094			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy																						<b>DATE:</b> February 2012											
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>											<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>											<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>											
<b>Proj 0260</b>																																	
		<b>FY 2011</b>				<b>FY 2012</b>				<b>FY 2013</b>				<b>FY 2014</b>				<b>FY 2015</b>				<b>FY 2016</b>				<b>FY 2017</b>							
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
<b>Milestones</b>																																	
<b>Events</b>																																	
<b>Contract Awards</b>																																	
<b>Reliability Growth Program</b>																																	
<b>Deliveries</b>																																	

2013PB - 0603502N - 0260

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 0260: <i>Remote Minehunting Systems</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0260</b>				
Milestones: Milestone C	3	2014	3	2014
Milestones: Full Rate Production Decision	4	2017	4	2017
Events: Technical Evaluation (TECHEVAL)	2	2017	2	2017
Events: Operational Evaluation (OPEVAL)	3	2017	3	2017
Events: Design Review I	2	2011	2	2011
Events: Design Review II	3	2012	3	2012
Events: Initial Operating Capability (IOC)	2	2015	2	2015
Events: Contract Awards: RGP Continuation Contract	1	2012	1	2012
Events: Contract Awards: LRIP Award with FRP options	1	2015	1	2015
Events: Reliability Growth Program: Reliability Growth Program	1	2011	3	2014
Events: Reliability Growth Program: OA (OT-B1)	2	2014	2	2014
Events: Reliability Growth Program: DT (DT-IIG)	4	2013	4	2013
Deliveries: 2 LRIPs	4	2016	4	2016
Deliveries: 4 LRIPS	4	2017	4	2017



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1233: <i>Surface MCM Mid-life Upgrade</i>	28.397	25.593	33.690	-	33.690	26.995	22.675	19.524	19.851	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

(1) AN/SQQ-32(V)4 High-Frequency, Wide Band (HFWB) is a technology upgrade to the AN/SQQ-32 Towed Body which will incorporate HFWB technology into the detection sonar to address performance deficiencies against new mine threats in the littorals. This upgrade will be installed on MCM-1 Class ships with the AN/SQQ-32(V)3 and will develop new transducer modules, fiber optic cable and modify topside processing and display software. 2) Mine Warfare and Environmental Decision Aids Library (MEDAL) is a software segment on the Global Command and Control System - Maritime (GCCS-M). MEDAL provides mine and mine warfare planning and evaluation tools and databases to the MCM Commander. 3) Develop and implement Mine Countermeasures Commander's Estimate of the Situation (MCM CES). 4) Unmanned Surface Sweep System (US3) is a magnetic/acoustic sweep system developed to sweep acoustic/magnetic influence mines, and when integrated with an unmanned surface vehicle (USV) becomes the Unmanned Influence Sweep System (UISS) deployed from the Littoral Combat Ship (LCS).

FY12 Congressional reduction for Program Execution (\$8.9M) is shown as a reduction to project 0260, Remote Minehunting System. After further review of the Congressional action, the Navy has determined that Congressional intent was to apply the reduction to project 1233, Surface MCM Mid-life Upgrade (-\$3.045M) and project 2131, Assault Breathing System (-\$5.855M). The Navy will make this adjustment during FY12 execution and the change will be reflected in future budget submissions."

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> MCM CES/PRODUCT DEVELOPMENT:			
<b>Articles:</b>	0.100 0	0.110 0	0.125 0
<b>FY 2011 Accomplishments:</b>			
MEDAL EA: Completed development of Iteration 5. Initiated (software specifications) for Iteration 6. Updated curriculum to combine MEDAL Operator and Supervisor courseware for a single NEC course per MCM Task Force guidance.			
<b>FY 2012 Plans:</b>			
Conduct Contractor Testing of MEDAL EA Iteration 5 and MCM CES software. Participate in Trident warrior 12 exercise with MEDAL EA Iteration 5 and MCM CES software (limited fielding). Complete Iteration 6 software development. Initiate (software specifications) for Iteration 7. Conduct CANES/ISNS and LCS Mission Package integration activities. Develop MEDAL EA training job aids.			
<b>FY 2013 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Complete development of MEDAL EA Iteration 7. Conduct integration activities with CANES/ISNS and LCS Mission Package. Initiate Information Assurance documentation for Authority to Operate on Navy networks. Conduct series of Development Tests (DT). Conduct OA planning for FY14. Develop MEDAL EA training job aids.				
<b>Title:</b> MCM CES/SUPPORT:  <b>FY 2011 Accomplishments:</b> Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness in reducing the complexity of the MCM planning problem into a manageable set of options depending on the operational objective. Support effort to include communication with activities such as ONR and NSWPC-PC to coordinate the incorporation of validated algorithms and models into MEDAL with the CES framework in order to effectively simplify the MCM planning problem for CSG and ESG staffs and therefore provide the speed, agility, adaptability, and flexibility required for modern MCM operations. Validate Fleet usability of Planning on Risk (PoR) module.  <b>FY 2012 Plans:</b> Continue introduction of capability and Planning on Risk (PoR) functionality via a limited fielding to Fleet Users including Mine Counter Measures Squadrons (MCMRONS) and Naval Mine and Anti Submarine Warfare Command (NMAWC).  <b>FY 2013 Plans:</b> Continue introduction of capability and Planning on Risk (PoR) functionality via a limited fielding to Fleet Users including Mine Counter Measures Squadrons (MCMRONS) and Naval Mine and Anti Submarine Warfare Command (NMAWC).		<b>Articles:</b> 0.069 0	0.063 0	0.095 0
<b>Title:</b> MCM CES/TEST AND EVALUATION:  <b>FY 2011 Accomplishments:</b> Complete Integration testing with MEDAL WA V1.  <b>FY 2012 Plans:</b> Test planning and initial user evaluation during Trident Warrior 12.  <b>FY 2013 Plans:</b> Test Planning for MEDAL EA DT/OA in FY14.		<b>Articles:</b> 0.126 0	0.139 0	0.159 0
<b>Title:</b> MCM CES/MANAGEMENT:  <b>FY 2011 Accomplishments:</b>		<b>Articles:</b> 0.026 0	0.031 0	- 

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Program management shall include overall technical guidance and leadership for the program. Other ongoing PM support includes oversight of financial and logistics efforts and adequate coordination with MEDAL. Other PM tasking to include briefings, demonstrations, and project planning as required.</p> <p><b>FY 2012 Plans:</b> Program management shall include overall technical guidance and leadership for the program. Other ongoing PM support includes oversight of financial and logistics efforts and adequate coordination with MEDAL. Other PM tasking will include briefings, demonstrations, and project planning as required.</p>				
<p><b>Title:</b> HFWB/PRODUCT DEVELOPMENT:</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> FY11 continue system engineering, requirements analysis, design and development for AN/SQQ-32(V)4 HFWB P3I through the sensor effort.</p> <p><b>FY 2012 Plans:</b> FY12 continue system engineering, requirements analysis, design and development for AN/SQQ-32(V)4 HFWB P3I effort.</p> <p><b>FY 2013 Plans:</b> Continue System engineer, requirements analysis and design for AN/SQQ-32(V)4 HFWB P3I through the Sensor effort.</p>		1.563 0	1.289 0	1.378 0
<p><b>Title:</b> HFWB/SUPPORT:</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> FY11 continue system engineering and requirements analysis for AN/SQQ-32(V)4 HFWB P3I effort.</p> <p><b>FY 2012 Plans:</b> FY12 continue software requirements, configuration and software integraton for AN/SQQ-32(V)4 HFWB P3I effort.</p> <p><b>FY 2013 Plans:</b> Continue software requirements, configuration, and software integration for AN.SQQ-32(V)4 HFWB P3I through the sensor.</p>		0.300 0	0.342 0	0.370 0
<p><b>Title:</b> HFWB/TEST AND EVALUATION:</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> FY11 perform lab testing for AN/SQQ-32(V)4 HFWB P3I through the sensor effort.</p> <p><b>FY 2012 Plans:</b></p>		0.100 0	0.100 0	0.350 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>		<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
FY12 continue to perform lab testing for AN/SQQ-32(V)4 HFWB P3I through the sensor effort.		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>FY 2013 Plans:</b> Perform Lab and at sea testing for AN/SQQ-32(V)4 HFWB P3I effort.				
<b>Title:</b> HFWB/MANAGEMENT:				
		<b>Articles:</b>	0.100 0	0.120 0
				0.117 0
<b>FY 2011 Accomplishments:</b> FY11 provide program management support and travel for AN/SQQ-32(V)4 HFWB Upgrade program.				
<b>FY 2012 Plans:</b> FY12 provide program management support and travel for AN/SQQ-32(V)4 HFWB Upgrade program.				
<b>FY 2013 Plans:</b> FY13 provide program management support and travel for AN/SQQ-32(V)4 HFWB Upgrade program				
<b>Title:</b> MEDAL/PRODUCT DEVELOPMENT:				
		<b>Articles:</b>	3.677 0	5.648 0
				5.839 0
<b>FY 2011 Accomplishments:</b> Completed development of Iteration 5. Initiated (software specifications) for Iteration 6. Updated curriculum to combine MEDAL Operator and Supervisor courseware for a single NEC course per MCM Task Force guidance.				
<b>FY 2012 Plans:</b> Conduct Contractor Testing of MEDAL EA Iteration 5 and MCM CES software. Participate in Trident Warrior 12 exercise with MEDAL EA Iteration 5 and MCM CES software (limited fielding). Complete Iteration 6 software development. Initiate (software specifications) for Iteration 7. Conduct CANES/ISNS and LCS Mission Package integration activities. Develop MEDAL EA training job aids.				
<b>FY 2013 Plans:</b> Complete development of MEDAL EA Iteration 7. Conduct integration activities with CANES/ISNs and LCS Mission Package. Initiate Information Assurance documentation for Authority to operate on navy networks. Conduct series of Development tests (DTs). Conduct OA planning for FY14. Develop MEDAL EA training aids.				
<b>Title:</b> MEDAL/SUPPORT:				
		<b>Articles:</b>	0.435 0	1.156 0
				0.550 0
<b>FY 2011 Accomplishments:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Support effort to include communication with activities such as applied labs, government activities, and designated contractors. Assist in providing the speed, agility, adaptability, and flexibility required for modern MCM operations.</p> <p><b>FY 2012 Plans:</b> Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Support effort to include communication with activities such as applied labs, government activities, and designated contractors. Assist in providing the speed, agility, adaptability, and flexibility required for modern MCM operations.</p> <p><b>FY 2013 Plans:</b> Oversee technical integration of developed algorithms and models that have demonstrated their effectiveness with respect to their objectives. Support effort to include communication with activities such as applied labs, government activities, and designated contractors. Assist in providing the speed, agility, adaptability, and flexibility required for modern MCM operations.</p>				
<p><b>Title:</b> MEDAL/TEST AND EVALUATION:</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Completed Contractor testing Iteration 4. Developed MEDAL EA test strategy. Developed Test Planning for trident Warrior 12.</p> <p><b>FY 2012 Plans:</b> Complete Iteration 5 Contractor testing. Participate in Trident Warrior 12 (Contractor Test) for initial user evaluation. Develop DT test plans for FY13.</p> <p><b>FY 2013 Plans:</b> Continue planning and conduct DT for Surface MCM. Continue System Integration testing activities with CANES and ISNS. Continue planning for subsequent FY14 DT and OA events.</p>		1.965 0	1.650 0	2.000 0
<p><b>Title:</b> MEDAL/MANAGEMENT:</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Provide program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIW, Expeditionary Warfare C4ISR, tactics development, long term planning, Naval Special Clearance Team (NSCT)-1, Assault Breaching Systems of</p>		0.406 0	0.768 0	0.768 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Systems (ABSoS), LCS, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required.  <b>FY 2012 Plans:</b> Provide program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIEW, Expeditionary Warfare C4ISR, tactics development, long term planning, Naval Special Clearance Team (NSCT-1) Assault Breaching Systems of Systems (ABSoS), LCS, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required.  <b>FY 2013 Plans:</b> Provide program management support and travel for MEDAL program. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. As part of the systems engineering element of PM, communicate and coordinate with MIW C4ISR, ICWS, Organic MCM, Mainstreaming MIEW, Expeditionary Warfare C4ISR, tactics development, long term planning, Naval Special Clearance Team (NSCT-1) Assault Breaching Systems of Systems (ABSoS), LCS, and other programs as they relate to MEDAL and MIW Mission Planning, Evaluation, and C4ISR. Other PM tasking to include briefings, demonstrations, and project planning as required.				
<b>Title:</b> US3/PRODUCT DEVELOPMENT:		0.780	7.877	10.488
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Continue Milestone B documentation. Continue risk reduction tasks.  <b>FY 2012 Plans:</b> Continue Milestone B documentation. Complete Risk Reduction efforts.  <b>FY 2013 Plans:</b> Begin Engineering and Development Phase. Design and build Engineering Development Model (EDM). Develop software and hardware interfaces. Conduct MS B. Conduct Preliminary Design Review (PDR) and Critical Design Review (CDR)				
<b>Title:</b> US3/SUPPORT:		0.647	1.273	4.339
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>		<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
Engineering and Integrated Logistic Support (ILS) support for Milestone B documentation. <b>FY 2012 Plans:</b> Completion of Milestone B documentation. <b>FY 2013 Plans:</b> Engineering and ILS for E&MD phase efforts.		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> US3/TEST AND EVALUATION:  <b>FY 2011 Accomplishments:</b> Sweep Power Subsystem (SPS) final test. Continue TEMP development. <b>FY 2012 Plans:</b> Complete TEMP. Technology Development testing. UISS Demonstration Testing. <b>FY 2013 Plans:</b> EDM Integrated system testing.		0.317 0	3.487 0	1.972 0
<b>Articles:</b>				
<b>Title:</b> US3/MANAGEMENT:  <b>FY 2011 Accomplishments:</b> Program support for Milestone B documentation. <b>FY 2012 Plans:</b> Program support for Milestone B documentation. <b>FY 2013 Plans:</b> Support the award of the engineering and manufacturing development contract in the 2nd Qtr. EMD contract management. Program support for Milestone C documentation.		0.386 0	1.540 0	1.540 0
<b>Articles:</b>				
<b>Title:</b> MNS Replacement  <b>FY 2011 Accomplishments:</b> Implemented MCM Ship Mine Neutralization Replacement program to include proof of concept SMCM ship system, engineering, and testing in support of an Urgent Operational Need (UON). <b>FY 2013 Plans:</b>		17.400 0	-	3.600 0
<b>Articles:</b>				

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continue proof of concept SMCM ship system, engineering and testing for the MCM Ship Mine Neutralization Replacement program.			
<b>Accomplishments/Planned Programs Subtotals</b>	28.397	25.593	33.690

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2622: LV075/LV078/LV080	30.859	10.114	35.906	0.000	35.906	30.013	1.053	1.110	1.231	0.000	151.037

**D. Acquisition Strategy**  
 HFWB - Naval Surface Warfare Center, Panama City (NSWC, PC) and ARL UT designed and developed the HFWB upgrade to the AN/SQQ-32.

Mine Warfare and Environmental Decision Aids Library (MEDAL) - requirements for MEDAL Builds are generated through a formal requirements process. Requirements conferences gather a list of candidate functions based on a logical sequence to fully implement the overall software architecture. The fleet is presented with a recommended list of candidate capabilities based on this program plan, doctrine, fleet comments, and technology. These capability items are then prioritized by the fleet representatives (coordinated by Naval Mine Warfare and Anti-Submarine Command (NMAWC). The fleet inputs are then consolidated by COMINWARCOM into an overall list which is then presented to Navy leadership for pricing and final selection. The selection is based on price, risk, available funding, and possibly by other program factors (e.g., ensure that MEDAL supports other program delivery schedules). Selection balances immediate needs, long term objectives, technical maturity and other programmatic factors. A verification and validation process is applied to any algorithms, tactics, or models to be incorporated in the software. MEDAL development to include integration of data fusion techniques and incorporation of Data Access Layer (DAL) architecture to meet FORCENet requirements. Acquisition strategy for Mine Countermeasures Commander's Estimate of the situation (MCM CES) is to deliver the software module within MEDAL builds by implementing the CES framework into the MEDAL software.

US3- Requirements for US3 will be documented in the Unmanned Influence Sweep System (UISS) Capability Development Document (CDD). Two Engineering and Manufacturing Development (EMD) contracts will be awarded in FY13 with an option for Low Rate Initial Production (LRIP).

**E. Performance Metrics**  
 US3 - Successfully reach Milestone B in FY13; Award EDM contract.



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
MNS Development	Various	TBD:TBD	17.400	-		3.600	Feb 2013	-		3.600	0.000	21.000	
BSP: Develop Bottom Sediment Classifier	WR	NRL:WASHINGTON, DC	0.258	-		-		-		-	0.000	0.258	
Systems Engineering and Integration	WR	NSWC, PC: PANAMA CITY, FL	0.306	-		-		-		-	0.000	0.306	
System Development 1	WR	NSWC, PC: SAN DIEGO, CA	0.373	-		-		-		-	0.000	0.373	
Systems Engineering 2	WR	NSWC, PC: PANAMA CITY, FL	2.915	-		-		-		-	0.000	2.915	
Systems Engineering 3 MCM CES	WR	NSWC, PC: PANAMA CITY, FL	1.388	0.120	Nov 2011	0.120	Nov 2012	-		0.120	Continuing	Continuing	Continuing
HFWB: Primary Hardware Development 1	C/CPAF	NSWC, PC/ARL UT:FLORIDA/TEXAS	15.511	-		-		-		-	0.000	15.511	
Primary Hardware Development 2	WR	ARL-UT:AUSTIN, TX	-	-		-		-		-	0.000	0.000	
HFWB: Tow Cable Development	C/CPAF	NSWC, PC/ARL UT:FLORIDA/TEXAS	1.399	-		-		-		-	0.000	1.399	
HFWB: Ship Integration	WR	NSWC, PC: PANAMA CITY, FL	1.697	-		-		-		-	0.000	1.697	
HFWB: SYSTEM ENGINEER	C/CPAF	NSWC/ARL UT:FLORIDA/TEXAS	3.887	1.289	Nov 2011	1.396	Nov 2012	-		1.396	0.000	6.572	
Software Development MEDAL EA	C/CPFF	SAIC: SAN DIEGO, CA	25.843	4.767	Nov 2011	5.839	Nov 2012	-		5.839	0.000	36.449	
US3: Product Development	C/CPIF	ITT: PANAMA CITY, FL	5.198	-		-		-		-	0.000	5.198	
US3: Product Development 2	WR	NSWC, PC: PANAMA CITY, FL	1.810	3.513	Mar 2012	-		-		-	0.000	5.323	
US3: Product Development 3	C/CPIF	Various: Various	0.430	2.840	Apr 2012	-		-		-	0.000	3.270	
US3: Product Development 4	C/CPIF	TBD:TBD	-	-		10.488	Dec 2012	-		10.488	Continuing	Continuing	Continuing
US3: Product Development 5	WR	NSWC, CD: Carderock, MD	-	1.524	Mar 2012	-		-		-	0.000	1.524	
<b>Subtotal</b>			78.415	14.053		21.443		-		21.443			

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Develop Logistics Products	WR	NSWC, PC: PANAMA CITY, FL	0.160	0.083	Nov 2011	0.080	Nov 2012	-		0.080	0.000	0.323	
Software Development 1	C/CPFF	SAIC: McLean, VA	0.350	-		-		-		-	0.000	0.350	
Software Development 2	C/CPFF	SAIC: McLean, Va	0.914	-		-		-		-	0.000	0.914	
HFWB Software Development	WR	NSWC, PC/ARL-UT: FLORIDA/TEXAS	6.712	0.300	Nov 2011	0.324	Nov 2012	-		0.324	0.000	7.336	
HFWB Integrated Logistics Support	WR	NSWC, PC: PANAMA CITY, FL	2.723	0.042	Nov 2011	0.061	Nov 2012	-		0.061	0.000	2.826	
Software Engineering 1	WR	SPAWAR: SAN DIEGO, CA	0.778	0.644	Nov 2011	-		-		-	0.000	1.422	
Software Engineering 2	WR	NSWC, PC: PANAMA CITY, FL	0.922	-		0.550	Nov 2012	-		0.550	0.000	1.472	
US3: Engineering 1	C/CPAF	ITT: PANAMA CITY, FL	3.018	-		-		-		-	0.000	3.018	
US3: Engineering 2	WR	NSWC, PC: PANAMA CITY, FL	4.612	0.300	Nov 2011	0.539	Dec 2012	-		0.539	Continuing	Continuing	Continuing
US3: Engineering 3	WR	NSWC, CD: Bethesda, MD	-	0.700	Dec 2011	0.800	Dec 2012	-		0.800	Continuing	Continuing	Continuing
US3: Integrated Logistics 1	C/CPAF	ITT: PANAMA CITY, FL	1.408	-		-		-		-	0.000	1.408	
US3: Integrated Logistics 2	WR	NSWC, PC: PANAMA CITY, FL	2.545	0.273	Nov 2011	3.000	Dec 2012	-		3.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			24.142	2.342		5.354		-		5.354			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
MEDAL Test and Evaluation	C/FP	SAIC: San Diego, CA	-	1.964	Nov 2011	2.000	Nov 2012	-		2.000	0.000	3.964	
Test and Evaluation 1	C/CPAF	VARIOUS: VARIOUS	0.473	1.358	Nov 2011	0.148	Nov 2012	-		0.148	0.000	1.979	
HFWB: Developmental Test and Evaluation	WR	NSWC, PC/ARL-UT: FLORIDA/TEXAS	4.099	0.100	Nov 2011	0.350	Nov 2012	-		0.350	0.000	4.549	
Test and Evaluation 2	C/CPAF	VARIOUS: VARIOUS	3.917	1.687	Jun 2012	-		-		-	0.000	5.604	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
US3: Test and Evaluation 1	C/CPHF	ITT: PANAMA CITY, FL	2.118	-		-		-		-	0.000	2.118	
US3: Test and Evaluation 2	WR	NSWC, PC: PANAMA CITY, FL	4.155	1.080	Nov 2011	0.364	Dec 2012	-		0.364	Continuing	Continuing	Continuing
US3: Test and Evaluation 3	WR	NSWC, CCD: WEST BETHESDA, MD	-	0.720	Nov 2011	0.364	Dec 2012	-		0.364	Continuing	Continuing	Continuing
US3: Test and Evaluation 4	C/CPHF	TBD: TBD	-	-		1.244	Dec 2012	-		1.244	Continuing	Continuing	Continuing
<b>Subtotal</b>			14.762	6.909		4.470		-		4.470			

**Remarks**  
FY12 Congressional reduction for Program Execution (\$8.9M) is shown as a reduction to project 0260, Remote Minehunting System. After further review of the Congressional action, the Navy has determined that Congressional intent was to apply the reduction to project 1233, Surface MCM Mid-life Upgrade (-\$3.045M) and project 2131, Assault Breathing System (-\$5.855M). The Navy will make this adjustment during FY12 execution and the change will be reflected in future budget submissions."

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support 1	C/CPFF	CACI: WASHINGTON, DC	0.263	-		-		-		-	0.000	0.263	
Travel 1	WR	NAVSEA: WNY, DC	0.084	-		-		-		-	0.000	0.084	
Government Engineering Support1	WR	NSWC, PC: PANAMA CITY, FL	0.271	0.031	Nov 2011	0.031	Nov 2012	-		0.031	0.000	0.333	
MEDAL Program Management Support 2	Various	VARIOUS: VARIOUS	0.157	0.598	Nov 2011	0.745	Nov 2012	-		0.745	0.000	1.500	
SBIR Assessment 2	Various	VARIOUS: VARIOUS	0.019	-		-		-		-	0.000	0.019	
Program Management Support 3	C/CPFF	CACI: WASHINGTON, DC	1.341	-		-		-		-	0.000	1.341	
Program Management Support 4	C/CPFF	CACI: WASHINGTON, DC	0.080	-		-		-		-	0.000	0.080	
Government Engineering Support3	WR	NSWC, PC: PANAMA CITY, FL	0.090	-		-		-		-	0.000	0.090	
Travel 3	C/CPAF	NAVSEA: WNY, DC	0.256	-		-		-		-	0.000	0.256	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>		<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>				
Program Management Support 5	C/CPFF	CACI:WASHINGTON, DC	0.167	-		-		-		-	0.000	0.167		
Government Engineering Support4	WR	NSWC, PC: PANAMA CITY, FL	0.010	-		-		-		-	0.000	0.010		
Travel4	C/CPAF	NSWC, PC: PANAMA CITY, FL	0.069	-		-		-		-	0.000	0.069		
HFWB: Program Management Support 6	C/CPAF	VARIOUS:VARIOUS	1.332	0.110	Jan 2012	0.107	Nov 2012	-		0.107	0.000	1.549		
HFWB: Government Engineering Support5	WR	NSWC, PC: PANAMA CITY, FL	0.750	-		-		-		-	0.000	0.750		
HFWB: Travel 5	C/CPAF	NAVSEA:WNY, DC	0.060	0.010	Nov 2011	-		-		-	0.000	0.070		
Government Engineering Support6	WR	NSWC, PC: PANAMA CITY, FL	1.352	-		-		-		-	0.000	1.352		
Travel 6	C/CPAF	NAVSEA:WNY, DC	0.238	-		-		-		-	0.000	0.238		
SBIR Assessment 6	Various	VARIOUS:VARIOUS	0.054	-		-		-		-	0.000	0.054		
Program Management Support 7	C/CPAF	VARIOUS:VARIOUS	0.350	-		-		-		-	0.000	0.350		
Acquisition Workforce Fund	Various	VARIOUS:VARIOUS	0.122	-		-		-		-	0.000	0.122		
US3: Contractor Management 3	WR	ITT: PANAMA CITY, FL	0.776	-		-		-		-	0.000	0.776		
US3: Government Management	WR	VARIOUS:VARIOUS	2.678	1.140	Nov 2011	0.840	Nov 2012	-		0.840	Continuing	Continuing	Continuing	
US3: Contractor Management 7	C/CPAF	CACI:WASHINGTON, DC	0.249	-		-		-		-	0.000	0.249		
US3: Contractor Management	C/CPFF	TBD:TBD	-	0.300	Nov 2011	0.580	Nov 2012	-		0.580	Continuing	Continuing	Continuing	
US3: Travel	WR	NAVSEA:WNY, DC	0.100	0.100	Nov 2011	0.120	Nov 2012	-		0.120	Continuing	Continuing	Continuing	
<b>Subtotal</b>			10.868	2.289		2.423		-		2.423				
<b>Project Cost Totals</b>			128.187	25.593		33.690		-		33.690				

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy						<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>			<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>			
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>

Remarks

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

US3	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
<b>Acquisition Milestones</b>																																				
Milestones									MSB ●									MSC ●									IOC ▲									
<b>System Development</b>																																				
Milestone Documentation	Milestone B Documentation																																			
Engineering & Manufacturing Development Phase									E&MD Contract Award ◆																											
Reviews									E&MD Phase				PDR ▼				CDR ▼																			
<b>Test and Evaluation</b>																																				
Test Events	Risk Reduction Test																DT/OA				IOT&E															
<b>Production Milestones</b>																																				
Low Rate Initial Production																	LRIP Contract Award ◆				LRIP															

2013PB - 0603502N - 1233

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

HFWB	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>																												
Milestones																												
<b>System Development</b>																												
P3I	P3I																											
<b>Test and Evaluation</b>																												
<b>Production Milestones</b>																												
Contract Award																												
Full Rate Production	FRP																											
<b>Deliveries</b>																												
Installation	Installation																											

2013PB - 0603502N - 1233

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

MEDAL	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>																												
<b>System Development</b>																												
MEDAL EA v.1 Iterations	Iteration 4																											
	Iteration 5																											
			Iteration 5 Tactical Server																									
			Iteration 6																									
								Iteration 7																				
MEDAL EA v.2 Development														v.2 Development														
<b>Test and Evaluation</b>																												
Enterprise Arch (EA) v.1	EA DT								EA OA																			
<b>Production Milestones</b>																												
<b>Deliveries</b>																												

2013PB - 0603502N - 1233



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

MCM CES	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017									
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q						
<b>Acquisition Milestones</b>																																		
Milestones																																		
<b>System Development</b>																																		
Future Development					Future Development																													
<b>Test and Evaluation</b>																																		
Build 1		Build 1 Development and Test	Build 1 Integration and Test (Fleet Trial)																															
<b>Production Milestones</b>																																		
<b>Deliveries</b>																																		

2013PB - 0603502N - 1233

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>US3</b>				
Acquisition Milestones: Milestones: Milestone B	1	2013	1	2013
Acquisition Milestones: Milestones: Milestone C	1	2015	1	2015
Acquisition Milestones: Milestones: Initial Operational Capability	1	2017	1	2017
System Development: Milestone Documentation: Milestone B Documentation	1	2011	1	2013
System Development: Engineering & Manufacturing Development Phase: E&MD Contract Award	1	2013	1	2013
System Development: Engineering & Manufacturing Development Phase: Engineering & Manufacturing Development phase	1	2013	1	2015
System Development: Reviews: PDR Decision	2	2013	2	2013
System Development: Reviews: CDR Decision	4	2013	4	2013
Test and Evaluation: Test Events: Risk Reduction	1	2011	4	2012
Test and Evaluation: Test Events: DT Testing	4	2014	1	2015
Test and Evaluation: Test Events: Initial Operation Test and Evaluation	4	2016	1	2017
Production Milestones: Low Rate Initial Production: LRIP Contract Award	1	2015	1	2015
Production Milestones: Low Rate Initial Production: LRIP phase	1	2015	4	2017
<b>HFWB</b>				
System Development: P3I: P3I Through Sensor	2	2011	4	2017
Production Milestones: Full Rate Production: FRP	1	2011	4	2013
Deliveries: Installation: Installation	4	2011	2	2015
<b>MEDAL</b>				
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 4	1	2011	1	2011
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 5	1	2011	4	2011

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 1233: <i>Surface MCM Mid-life Upgrade</i>
---	---	---

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 5 Tactical Server	4	2011	4	2011
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 6	3	2011	4	2012
System Development: MEDAL EA v.1 Iterations: EA v.1 Iteration 7	4	2012	3	2013
System Development: MEDAL EA v.2 Development: EA v.2 Development	1	2014	4	2016
Test and Evaluation: Enterprise Arch (EA) v.1: Enterprise Arch (EA) v.1 Development and Test	1	2011	3	2013
Test and Evaluation: Enterprise Arch (EA) v.1: EA v.1 Operational Assessment (OA)	4	2013	4	2013
<b>MCM CES</b>				
Acquisition Milestones: Milestones: IOC	4	2014	4	2014
System Development: Future Development: MCM CES Future Development	1	2012	4	2016
Test and Evaluation: Build 1: Build 1 Development and Test	1	2011	1	2011
Test and Evaluation: Build 1: Build 1 Integration and Test (Fleet Trial)	2	2011	3	2011

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2094.: <i>Unmanned Underwater Vehicle</i>	-	-	36.773	-	36.773	8.816	13.736	1.825	0.835	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Persistent Littoral Undersea Surveillance (PLUS) Innovative Naval Prototype (INP) Program provides Undersea Surveillance capability by employing mobile Unmanned Undersea Vehicle (UUV) technology. PLUS is being developed in response to an Urgent Operational Need (UON) identified by the Fleet. PLUS uses both conventionally powered UUVs with propellers and UUVs propelled by buoyancy engines (commonly called gliders). S&T development planned to transition into a prototype User Operational Evaluation System (UOES). The Large Displacement Unmanned Undersea Vehicle (LDUUV) provides long endurance UUVs operating autonomously in denied littorals with multiple mission payloads to increase the Navy's capacity and capability.

Persistent Littoral Undersea Surveillance (PLUS): The Persistent Littoral Undersea Surveillance (PLUS) program provides effective, adaptive and persistent undersea surveillance targets over large littoral areas.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Product Development</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2013 Plans:</b> PLUS - Identify/establish contract vehicle(s) and system specifications. Based on determinations from transition and Concept of Employment (CONEMP) Plans, develop prototype using REMUS 600 UUVs, hydrophone towed arrays, SEAGLIDER communication and navigation vehicles, and other material as determined for integration, Launch and Recovery (L&amp;R) Hardware, Command and Control (C2) Hardware.</p> <p>LDUUV - Develop Performance Specifications to support Preliminary Design phase of LDUUV POR.</p>	-	-	13.250 0
<p><b>Title:</b> Support</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2013 Plans:</b> PLUS - Commence development of tailored UOES technical documentation to support transition from S&amp;T to a UOES project. Develop system &amp; operational classification guidance. Generate system training and support plans. Document appropriate C2 strategy for system operations. Complete requisite Approval to Operate (ATO), Information Assurance/Anti-Tampering (IA/AT) certifications to support Fleet Exercise. Develop Logistics Plan. Obtain requisite Fleet approvals and develop Concept of Employment (CONEMP).</p>	-	-	12.731 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>
LDUUV - Conduct Cost Analysis and develop statutory documents for Gate 3 Review. Conduct Milestone A. Develop Technical Data Package for RFP release.			
<b>Title:</b> Test and Evaluation	<b>Articles:</b>	-	-
<b>FY 2013 Plans:</b> PLUS - Participate in ONR INP demonstrations and Fleet Exercises			1.000 0
<b>Title:</b> Management	<b>Articles:</b>	-	-
<b>FY 2013 Plans:</b> Provide program management support and travel for PLUS and LDUUV programs. Program management shall include overall technical guidance and leadership for the program. Oversight of financial and logistics efforts and coordination with Navy and other DoD organizations and contractors as required to ensure successful execution of the program. Travel and other PM tasking to include briefings, demonstrations, and project planning as required.			1.810 0
<b>Title:</b> Persistent Littoral Undersea Surveillance (PLUS)	<b>Articles:</b>	-	-
<b>Description:</b> Persistent Littoral Undersea Surveillance (PLUS): The Persistent Littoral Undersea Surveillance (PLUS) program provides effective, adaptive and persistent undersea surveillance targets over large littoral areas.			7.982 0
<b>FY 2013 Plans:</b> -Initiate the User Interface for the Operator consoles for the command and control functions. -Initiate the evaluation and implementation of IA and Anti-Tamper on a test vehicle. -Initiate the construction of the optimized array (s) for the system, test integration with autonomy and signal processing. -Initiate construction of the Revised and Optimized PLUS Sensor Vehicle. -Initiate the testing and evaluation of USBL Navigation and the construction of the CARINA vehicle. -Initiate and complete a Field Test and Evaluation with the Fleet.			
<b>Accomplishments/Planned Programs Subtotals</b>		-	-
<b>36.773</b>			
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>

**D. Acquisition Strategy**

PLUS will develop two prototype User Operational Evaluation System (UOES) in response to an Urgent Operational Need (UON) request from the Fleet. The PLUS UOES will be utilized in fleet experimentation events and fleet exercises to develop Concept of Employment (CONEMP) for a potential follow-on program of record.

LDUUV Innovative Naval Prototype (INP) program will transition 2 prototype LDUUVs to PMS406 LDUUV POR as User Operational Evaluation Systems (UOES). The LDUUV UOES will be utilized in Exercises to support requirement development that feeds into LDUUV POR.

This effort will transition to PEO-LCS / PMS406 as a User Operational Evaluation System (UOES) in FY 2013.

**E. Performance Metrics**

PLUS - Prototype Delivery

LDUUV - Achieve MS A

Performance metrics for this effort are classified.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
LDUUV Specification	WR	Various:Various	-	-		0.250	Dec 2012	-		0.250	0.000	0.250	
PLUS Prototype Hardware	Various	Various:Various	-	-		13.000	Dec 2012	-		13.000	Continuing	Continuing	Continuing
Arrays	C/CPFF	Ocean Acoustical Services and instrumentation:Lexington, MA	-	-		0.500	Oct 2012	-		0.500	0.000	0.500	
TDA's	C/CPFF	Ocean Acoustical Services and instrumentation:Lexington, MA	-	-		0.300	Oct 2012	-		0.300	0.000	0.300	
SP-Intergration	C/CPFF	Ocean Acoustical Services and instrumentation:Lexington, MA	-	-		0.500	Oct 2012	-		0.500	0.000	0.500	
TDA's	C/CPFF	METRON:Reston, VA	-	-		0.300	Oct 2012	-		0.300	0.000	0.300	
Navigation	C/FPRP	Woods Hole Oceanographic Institution:Woods Hole, MA	-	-		0.400	Oct 2012	-		0.400	0.000	0.400	
SP-Intergration	Reqn	NAVSEA:Baltimore, MD	-	-		0.500	Oct 2012	-		0.500	0.000	0.500	
TDA's	Reqn	NUWC:Newport, RI	-	-		0.300	Oct 2012	-		0.300	0.000	0.300	
SP Intergration	Reqn	NUWC:Newport, RI	-	-		0.200	Oct 2012	-		0.200	0.000	0.200	
Anti-Tamper	Reqn	Sandia Natl Lab:Livermore, CA	-	-		0.500	Oct 2012	-		0.500	0.000	0.500	
Vehicle	C/CPFF	Hydroid Kongsberg Marine:Pocasset, MA	-	-		0.600	Oct 2012	-		0.600	0.000	0.600	
<b>Subtotal</b>			-	-		17.350		-		17.350			

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
LDUUV Engineering Support	WR	NUWC Newport:Newport, RI	-	-		2.426	Dec 2012	-		2.426	0.000	2.426	
LDUUV Engineering Support 2	SS/CPFF	APL/JHU:Laurel, MD	-	-		2.335	Jan 2013	-		2.335	0.000	2.335	
LDUUV Engineering Support 3	SS/CPFF	ARL PSU:State College, PA	-	-		0.145	Jan 2013	-		0.145	0.000	0.145	
LDUUV Engineering Support 4	WR	NUWC Keyport:Keyport, WA	-	-		0.333	Dec 2012	-		0.333	0.000	0.333	
LDUUV ILS Support	WR	SSC Lant:Charleston, SC	-	-		0.205	Dec 2012	-		0.205	0.000	0.205	
LDUUV ILS Support 2	WR	VAR:VAR	-	-		0.287	Dec 2012	-		0.287	0.000	0.287	
PLUS ILS Support	WR	NUWC Newport:Newport, RI	-	-		0.500	Nov 2012	-		0.500	Continuing	Continuing	Continuing
PLUS Engineering Support	WR	NUWC Newport:Newport, RI	-	-		1.500	Nov 2012	-		1.500	Continuing	Continuing	Continuing
PLUS Engineering Support 2	TBD	WHOI:Woods Hole, MA	-	-		1.000	Feb 2013	-		1.000	Continuing	Continuing	Continuing
PLUS Engineering Support 3	SS/CPFF	APL/JHU:Laurel, MD	-	-		1.000	Dec 2012	-		1.000	Continuing	Continuing	Continuing
PLUS C2 Support	TBD	TBD:TBD	-	-		3.000	Mar 2013	-		3.000	Continuing	Continuing	Continuing
Test	Reqn	NUWC:Newport, RI	-	-		0.030	Oct 2012	-		0.030	0.000	0.030	
Test	Reqn	NSWD:Dahlgren, VA	-	-		0.060	Oct 2012	-		0.060	0.000	0.060	
Test	Reqn	NUWC:Patuxent, MD	-	-		0.020	Oct 2012	-		0.020	0.000	0.020	
IA	Reqn	NUWC:Newport, RI	-	-		0.150	Oct 2012	-		0.150	0.000	0.150	
<b>Subtotal</b>			-	-		12.991		-		12.991			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
PLUS Fleet Experimentation	Various	Various:Various	-	-		1.000	May 2013	-		1.000	Continuing	Continuing	Continuing
Test	C/CPFF	Ocean Acoustical Services and	-	-		0.500	Oct 2012	-		0.500	0.000	0.500	



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
		instrumentation:Lexington, MA											
Test	C/FPRP	Woods Hole Oceanographic Institution:Woods Hole, MA	-	-		0.982	Oct 2012	-		0.982	0.000	0.982	
Testing	C/CPFF	Woods Hole Oceanographic Institution:Woods Hole, MA	-	-		0.350	Oct 2012	-		0.350	0.000	0.350	
Testing	Reqn	NUWC:Newport, RI	-	-		0.400	Oct 2012	-		0.400	0.000	0.400	
Testing	Reqn	NPS:Monterey, CA	-	-		0.100	Oct 2012	-		0.100	0.000	0.100	
Testing	Reqn	SPAWAR:San Diego, CA	-	-		0.065	Oct 2012	-		0.065	0.000	0.065	
<b>Subtotal</b>			-	-		3.397		-		3.397			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
LDUUV Program Management	WR	NUWC Newport:Newport, RI	-	-		0.435	Dec 2012	-		0.435	0.000	0.435	
LDUUV Program Management 2	TBD	TBD:TBD	-	-		0.475	Jan 2013	-		0.475	0.000	0.475	
LDUUV Travel	Various	NAVSEA:Washington, DC	-	-		0.050	Dec 2012	-		0.050	0.000	0.050	
PLUS Program Management	Various	VAR:VAR	-	-		0.739	Dec 2012	-		0.739	Continuing	Continuing	Continuing
PLUS Travel	Various	NAVSEA:Washington, DC	-	-		0.111	Dec 2012	-		0.111	Continuing	Continuing	Continuing
Program	C/CPFF	Systems Planning & Analysis:Arlington, VA	-	-		0.700	Oct 2012	-		0.700	0.000	0.700	
Program	SS/BA	Kentco:Sterling, VA	-	-		0.475	Oct 2012	-		0.475	0.000	0.475	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program	SS/BA	Mandex:Fairfax, VA	-	-		0.050	Oct 2012	-		0.050	0.000	0.050	
<b>Subtotal</b>			-	-		3.035		-		3.035			
<b>Project Cost Totals</b>			-	-		36.773		-		36.773			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>PLUS Development</b>																												
<b>Prototype Integration</b>																												
<b>Fleet Experimentation</b>																												
UOES Forward Fleet Exercise																												
UOES Follow-on Fleet Exercises																												
<b>Requirements Development</b>																												
Transition Plan																												
Concept of Employment																												
<b>Program Transition</b>																												
UOES Transition Documentation																												
<b>Product Improvement</b>																												
Product Improvement																												

2013PB - 0603502N - 2094.L24

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

LDUUV Development	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>																												
Milestones																												
Milestone Documentation																												
<b>System Development</b>																												
Engineering & manufacturing Development Phase																												

MS A  
▲

Milestone Documentation

Draft RFP  
◆

2013PB - 0603502N - 2094.L24

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>PLUS Development</b>				
Prototype Integration: UUV/Arrays Integration	2	2013	2	2014
User Interface for the Operator consoles for the command and control functions: Development A: SRR	1	2013	1	2013
Prototype Integration: Glider Integration	4	2013	2	2014
User Interface for the Operator consoles for the command and control functions: Development A: PDR	3	2013	3	2013
User Interface for the Operator consoles for the command and control functions: Development A: FDR	4	2013	4	2013
Fleet Experimentation: UOES Forward Fleet Exercise: MRR	2	2014	2	2014
User Interface for the Operator consoles for the command and control functions: Development A: T&E	1	2014	1	2014
Fleet Experimentation: UOES Forward Fleet Exercise:	3	2014	3	2014
User Interface for the Operator consoles for the command and control functions: Development A: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	4	2014	4	2014
Fleet Experimentation: UOES Follow-on Fleet Exercises: MRR	4	2015	4	2015
Fleet Experimentation: UOES Follow-on Fleet Exercises: Schedule Detail	1	2016	4	2017
Evaluation of IA and Anti-Tamper on a test vehicle: Development B: SRR	1	2013	1	2013
Evaluation of IA and Anti-Tamper on a test vehicle: Development B: CDR	3	2013	3	2013
Evaluation of IA and Anti-Tamper on a test vehicle: Development B: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	2	2014	2	2014
Requirements Development: Transition Plan: Schedule Detail	1	2013	2	2013
Requirements Development: Concept of Employment: Schedule Detail	1	2013	2	2014

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Implementation of IA and Anti-Tamper on a test vehicle: Build A: FDR	4	2013	4	2013
Implementation of IA and Anti-Tamper on a test vehicle: Build A: T&E	1	2014	1	2014
Implementation of IA and Anti-Tamper on a test vehicle: Build A: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	2	2014	2	2014
Program Transition: UOES Transition Documentation: Schedule Detail	1	2013	4	2014
Construction of the optimized array (s) for the system: Development C: CDR	1	2013	1	2013
Product Improvement: Product Improvement: Product Improvement Implementation	1	2015	4	2015
Construction of the optimized array (s) for the system: Development C: T&E	4	2013	4	2013
<b><i>LDUUV Development</i></b>				
Construction of the optimized array (s) for the system: Build B: CDR	3	2013	3	2013
Construction of the optimized array (s) for the system: Build B: T&E	4	2013	4	2013
Acquisition Milestones: Milestones: Milestone A	3	2013	3	2013
Construction of the optimized array (s) for the system: Build B: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	1	2014	1	2014
Acquisition Milestones: Milestone Documentation: Milestone Documentation	1	2013	3	2013
Testing and integration of the array with autonomy and signal processing: Development D: ICD	1	2013	1	2013
Testing and integration of the array with autonomy and signal processing: Development D: TRR	3	2013	3	2013
System Development: Engineering & manufacturing Development Phase: Draft Request for Proposal	1	2014	1	2014
Testing and integration of the array with autonomy and signal processing: Development D: T&E	4	2013	4	2013
Testing and integration of the array with autonomy and signal processing: Development D: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	1	2014	1	2014
<b><i>Pg 2 PE 0603502N PLUS SPEED TO FLEET R&amp;D Initiative R-4</i></b>				

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2094.: <i>Unmanned Underwater Vehicle</i>
---	---	---

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Testing and evaluation of USBL Navigation: Development E: ICD	1	2013	1	2013
Testing and evaluation of USBL Navigation: Development E: TRR	2	2013	2	2013
Testing and evaluation of USBL Navigation: Development E: T&E	4	2013	4	2013
Testing and evaluation of USBL Navigation: Development E: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	1	2014	1	2014
Testing of the CARINA vehicle: Build C: CDR	1	2013	1	2013
Testing of the CARINA vehicle: Build C: TRR	2	2013	2	2013
Testing of the CARINA vehicle: Build C: T&E	4	2013	4	2013
Testing of the CARINA vehicle: Build C: PLUS is headed to a User Operated Evaluation System,this sets the specifications of the system.	4	2014	4	2014
Fleet Field Test and Evaluation: Development F: IPC	1	2013	1	2013
Fleet Field Test and Evaluation: Development F: MPC	3	2013	3	2013
Fleet Field Test and Evaluation: Development F: FPC	4	2013	4	2013
Construction of the Revised and Optimized PLUS Sensor Vehicle: Build D: CDR	1	2013	1	2013
Construction of the Revised and Optimized PLUS Sensor Vehicle: Build D: TRR	4	2013	4	2013
Construction of the Revised and Optimized PLUS Sensor Vehicle: Build D: T&E	1	2014	1	2014

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2131: <i>Assault Breaching System</i>	29.884	49.200	59.648	-	59.648	65.565	46.874	33.631	24.448	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program provides for a combination of U.S. Navy projects planned to counter the threat to amphibious landing forces from known and projected foreign land/sea mines, obstacles in the beach zone and surf zone approaches to amphibious assault areas. The Assault Breaching System (ABS) of Systems (Countermines/Counter Obstacle, Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T), Precision Navigation/Virtual Marking/Integration, C4I/Data Fusion) provides a full assault breaching capability which is an essential element to the Ship To Objective Maneuver (STOM) Concept of Operations.

Countermines/Counter Obstacle (CM/CO) - Far term - Counter Mine System (CMS) - transitioned from a 6.3 S&T Concept Demonstration effort to a 6.4 development program after a concept decision/AoA in FY06. CMS provides a near surface neutralization capability to the Navy.

ISR/T - Coastal Battlefield Reconnaissance and Analysis (COBRA) is the ISR/T part of the ABS of systems. This system provides Airborne Mine Countermeasures (AMCM) capability and one system consists of two Airborne Payloads and one Post Mission Analysis Station. Under the umbrella of evolutionary acquisition, three increments of development are planned; Block I introduces a daytime, surface laid minefield and obstacle detection capability for the Beach Zone. Blocks II and III will incorporate technology being developed by 6.3.

S&T. Block II adds a surfzone and night (darkness) detection capability. Block III adds a buried mine detection capability and on-board Near-Real-Time processing of Multi Spectral Imagery data.

COBRA will be a modular payload architecture of and integrated with the MQ-8B Fire Scout Vertical Takeoff and Landing Unmanned Aerial Vehicle (VTUAV) and will serve as the "detect" mission module of the Littoral Combat Ship (LCS) Mine Warfare mission package, providing AMCM capability.

Precision Navigation/Virtual Marking (PN/M)- The navigation effort involves requirements development and program planning to choose the navigational upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU), and Amphibious Assault Vehicle (AAV) to enable the craft to safely navigate the neutralized assault lanes. A system of virtual or physical lane marking is to be developed to guide the assault craft through the neutralized assault lanes. OPN will fund the CRAFTALTS to upgrade the navigation systems.

LCU Navigation Upgrade: Modernized the navigation system to enable safe transit through the breached lane.

LCAC Autopilot Upgrade: An integrated improvement to the LCAC (Service Life Extension Program (SLEP) navigation system for craft control that allows precise navigation and hovering within the breached lane. These software upgrades and backfits will occur during scheduled LCAC SLEPs.

AAV Navigation Upgrade : Modernize the navigation system to enable precise transit through the breached lane.

Command, Control, Computers, Communications and Intelligence (C4I) - System will tie all of the above systems together under an integrated ABS architecture and also tie in with the integrated Mine Warfare architecture.

FY12 Congressional reduction for Program Execution (\$8.9M) is shown as a reduction to project 0260, Remote Minehunting System. After further review of the Congressional action, the Navy has determined that Congressional intent was to apply the reduction to project 1233, Surface MCM Mid-life Upgrade (-\$3.045M) and



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>
---	---	---

project 2131, Assault Breaching System (-\$5.855M). The Navy will make this adjustment during FY12 execution and the change will be reflected in future budget submissions."

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Product Development:</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> CMS - Continue live dart/neutralizer testing with emphasis on aero-dynamics and structures. Begin CMS neutralizer lethality design and testing (100 darts).  COBRA - Complete BLK I integration Flight Tests with VTUAV. Begin COBRA Blk II design and development capability.  Precision Navigation/Marking (PN/M) - Continue evaluation/assessment of EDMs supporting PN/M efforts.</p> <p><b>FY 2012 Plans:</b> CMS - Continue live dart/neutralizer testing with emphasis on aero-dynamics and structures. Begin CMS neutralizer lethality design and testing (100 darts).  COBRA - Complete BLK I integration Flight Tests with VTUAV. Begin COBRA Blk II design and development capability.  Precision Navigation/Marking (PN/M) - Continue evaluation/assessment of EDMs supporting PN/M efforts.</p> <p><b>FY 2013 Plans:</b> CMS - Continue the design and development and conduct CMS neutralizer formal down selection between high explosive (HE) neutralizer and solid reactive material neutralizer. Conduct Critical Design Review (CDR), final dart down select.  COBRA - Continue design and development of COBRA Block II capability.</p>	<p>24.286</p> <p>0</p>	<p>38.579</p> <p>0</p>	<p>47.642</p> <p>0</p>
<p><b>Title:</b> Technical Support:</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> CMS/COBRA - Provide mine magazine inventory management and shipping, contract management and test/studies, C4I/Data Fusion. Provide technical/acquisition support and documentation (ILS, training, data, drawings). Achieve Blk II Milestone B decision.</p> <p><b>FY 2012 Plans:</b></p>	<p>0.926</p> <p>0</p>	<p>0.644</p> <p>0</p>	<p>0.926</p> <p>0</p>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
CMS/COBRA - Provide mine magazine inventory management and shipping, contract management and test/studies, C4I/Data Fusion. Provide technical/acquisition support and documentation (ILS, training, data, drawings). <b>FY 2013 Plans:</b> CMS/COBRA - Provide mine magazine inventory management and shipping, contract management and test/studies, C4I/Data Fusion. Provide technical/acquisition support and documentation (ILS, training, data, drawings).				
<b>Title:</b> Test and Evaluation:		3.235	8.599	9.695
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> CMS - Begin CMS Lethality Testing in support of Neutralizer Down-Select between the two darts.  PN/M - Continue to test the Precision Navigation and Marking design capability.				
<b>FY 2012 Plans:</b> CMS - Continue CMS Lethality Testing in support of Neutralizer Down-Select between the two darts. Tests against different mines in different conditions to determine the final dart design and lethality.  COBRA - Conduct Blk I Initial Operational Test and Evaluation (IOT&E) and flight test on the VTUAV.				
<b>FY 2013 Plans:</b> CMS - Complete 100 shot for neutralizers testing, payload modular. Accomplish CDR.  COBRA - Initial developemnt testing of Block II.				
<b>Title:</b> Management:		1.437	1.378	1.385
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion.				
<b>FY 2012 Plans:</b> Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion.				
<b>FY 2013 Plans:</b> Mine magazine inventory management and shipping, contract management and tests/studies, C4I/Data fusion.				
<b>Accomplishments/Planned Programs Subtotals</b>		29.884	49.200	59.648

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>
---	---	---

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

Line Item	FY 2011	FY 2012	FY 2013	FY 2013	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN/2624: <i>SHALLOW WATER MCM SHIP</i>	1.254	1.048	6.950	0.000	6.950	6.452	7.099	27.231	27.778	0.000	85.623
• OPN/1600: <i>LCS MODULES</i>	0.000	7.500	7.600	0.000	7.600	7.600	15.300	15.450	15.550	0.000	76.775
• WPN/4225: <i>AIRBORNE MCM</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	25.400	0.000	25.400

**D. Acquisition Strategy**

Countermeasure/Counter Obstacle (CM/CO) is a two phased approach, near term and far term solutions. The near term approach for CM/CO is JDAM Assault Breaching System (JABS) and ABS Tactical Decision Aid and this effort has been completed. The far term solution is CMS, which transitioned from ONR in 2nd QTR 07 followed by MS B decision in 3rd QTR 07 and SD&D contract in 4th QTR 08.

Intelligence/Surveillance/Reconnaissance/Targeting (ISR/T) - COBRA Block I achieved MS C in 3rd QTR FY09. COBRA Block II technology will transfer from ONR and achieve MS B in 3rd QTR FY11. COBRA Block III technology will transition in FY16.

Precision Navigation/Virtual Marking (PN/M) - The navigation upgrades for the Landing Craft, Air Cushion (LCAC) and Landing Craft, Utility (LCU) are in progress. AAV enhancements will be achieved through an ECP (PMA AAV (Marine Corps)) in 4th QTR FY11.

**E. Performance Metrics**

Successful COBRA integration, flight tests and Operational Assessment (OA) into the Vertical Take-off Unmanned Aerial Vehicle (VTUAV). CMS successful design analysis with the down selection of the dart and provide a near surface neutralization capability to the fleet.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Dev, COBRA	C/CPAF	Arete:MELBOURNE, FL	120.307	7.045	Nov 2011	7.045	Nov 2012	-		7.045	0.000	134.397	
Primary Hardware Dev, CMS	C/CPAF	Boeing:St. Louis, MO	67.591	22.255	Nov 2011	31.288	Oct 2012	-		31.288	0.000	121.134	
Ancillary Hardware Dev, JABS	C/CPAF	Unknown:Unknown	12.436	3.214	Feb 2012	3.214	Nov 2012	-		3.214	0.000	18.864	
Systems Engineering, COBRA	WR	NSWC, PC: PANAMA CITY, FL	20.860	-		-		-		-	0.000	20.860	
Software Dev, COBRA	WR	NAVAIR: PANAMA CITY, FL	12.958	-		-		-		-	0.000	12.958	
Systems Engineering, CMS	WR	NSWC, PC: PANAMA CITY, FL	27.199	1.703	Nov 2011	1.703	Nov 2012	-		1.703	Continuing	Continuing	Continuing
Training Dev, COBRA	WR	NSWC, PC: PANAMA CITY, FL	6.801	0.845	Nov 2011	0.845	Nov 2012	-		0.845	0.000	8.491	
Tooling	WR	NSWC, PC: PANAMA CITY, FL	0.860	-		-		-		-	0.000	0.860	
ABS IPT/Test Assets/Proj Eng	WR	NSWC, PC: PANAMA CITY, FL	7.212	0.417	Nov 2011	0.417	Nov 2012	-		0.417	0.000	8.046	
Precision Navigation & Marking	WR	NSWC, PC: PANAMA CITY, FL	8.041	3.100	Nov 2011	3.100	Nov 2012	-		3.100	0.000	14.241	
<b>Subtotal</b>			284.265	38.579		47.612		-		47.612			

**Remarks**  
FY12 Congressional reduction for Program Execution (\$8.9M) is shown as a reduction to project 0260, Remote Minehunting System. After further review of the Congressional action, the Navy has determined that Congressional intent was to apply the reduction to project 1233, Surface MCM Mid-life Upgrade (-\$3.045M) and project 2131, Assault Breaching System (-\$5.855M). The Navy will make this adjustment during FY12 execution and the change will be reflected in future budget submissions.

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Development Support Equipment	WR	NSWC, PC: PANAMA CITY, FL	16.767	1.153	Nov 2011	1.123	Oct 2012	-		1.123	0.000	19.043	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>
---	---	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	NSWC, PC: PANAMA CITY, FL	8.037	-		-		-		-	0.000	8.037	
Integrated Logistics Support	WR	NSWC, IH: NDIAN HEAD, MD	2.712	-		-		-		-	0.000	2.712	
Configuration Management	WR	NSWC, PC: PANAMA CITY, FL	3.744	-		-		-		-	0.000	3.744	
Technical Data	WR	NSWC, PC: PANAMA CITY, FL	2.588	-		-		-		-	0.000	2.588	
Studies & Analysis	WR	NSWC, PC: PANAMA CITY, FL	5.195	0.225	Nov 2011	0.222	Oct 2012	-		0.222	0.000	5.642	
GFE	WR	NSWC, PC: PANAMA CITY, FL	0.400	-		-		-		-	0.000	0.400	
<b>Subtotal</b>			39.443	1.378		1.345		-		1.345	0.000	42.166	

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NSWC, IH: NDIAN HEAD, MD	36.680	6.207	Nov 2011	6.207	Oct 2012	-		6.207	0.000	49.094	
Operational Test & Evaluation	WR	NSWC/ IH, PC: NDIAN HEAD, PANAMA CITY	8.655	-		-		-		-	0.000	8.655	
Tooling	WR	NSWC/ IH, PC: NDIAN HEAD, PANAMA CITY	0.700	-		-		-		-	0.000	0.700	
GFE	WR	NSWC/ IH, PC: NDIAN HEAD, PANAMA CITY	0.400	-		-	Oct 2012	-		-	0.000	0.400	
Development Test	C/FP	NSWC PC: Panama City, FL	2.392	2.392	Nov 2011	3.558	Oct 2012	-		3.558	0.000	8.342	
<b>Subtotal</b>			48.827	8.599		9.765		-		9.765	0.000	67.191	



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>
---	---	---

Assault Breaching System	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017																											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q																								
<b>Acquisition Milestones</b>																																																				
CMS													CDR ▲																																							
COBRA				COBRA BLK II MSB ▲																COBRA BLK III MSB ▲																LRIP DR ▲																FRP DR ▲
<b>System Development</b>																																																				
CMS																																																				
Sys Design/ Platform Integration																																																				
COBRA Block II SD&D																																																				
ISR/Navigation/C4I System Development																																																				
Reviews																																																				
<b>Test &amp; Evaluation</b>																																																				
<b>Production Milestones</b>																																																				
COBRA Block I Production (With Options)																																																				
<b>Deliveries</b>																																																				
COBRA													COBRA BLK I																																							

2013PB - 0603502N - 2131

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 2131: <i>Assault Breaching System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Assault Breaching System</b>				
Acquisition Milestones: CMS: CDR - Critical Design Review	1	2014	1	2014
Acquisition Milestones: COBRA: COBRA Block II Milestone B	4	2011	4	2011
Acquisition Milestones: COBRA: COBRA Block III Milestone B	4	2016	4	2016
Acquisition Milestones: COBRA: LRIP Decision Review Block II	4	2016	4	2016
Acquisition Milestones: COBRA: FRP Decision Review Block II	4	2016	4	2016
System Development: CMS: CMS System Development 6.4	1	2011	4	2016
System Development: CMS: CMS System Design/Platform Integration	1	2011	4	2016
System Development: COBRA Block II SD&D: COBRA Block II SD&D	4	2011	4	2017
System Development: ISR/Navigation/C4I System Development: ISR/Navigation/C4I System Development	1	2011	4	2017
Deliveries: COBRA: Schedule Detail	2	2013	4	2017



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 3123: <i>SMCM UUV</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3123: <i>SMCM UUV</i>	12.269	11.821	21.417	-	21.417	14.017	14.202	6.330	6.077	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Surface Mine Countermeasure Unmanned Undersea Vehicle (SMCM UUV) develops Unmanned Underwater Vehicles to support dedicated mine countermeasure operations, including buried mine detection. Equipment includes vehicles and associated systems support equipment. Potential P3I candidates include communications upgrades, on-board sonar processing and target recognition, command and control improvements, and other smaller tasks.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> SMCM UUV LFBB	11.669	11.266	21.417
<b>Articles:</b>	2	0	0
<b>FY 2011 Accomplishments:</b> Conducted Milestone B. Awarded Development Contract.			
<b>FY 2012 Plans:</b> Conduct Preliminary Design Review (PDR). Continue E&MD contract efforts.			
<b>FY 2013 Plans:</b> Conduct Critical Design Review (CDR). Commence vehicle fabrication.			
<b>Title:</b> SMCM UOES	0.600	0.555	-
<b>Articles:</b>	0	0	
<b>FY 2011 Accomplishments:</b> Fleet training. Continue support of fleet exercises.			
<b>FY 2012 Plans:</b> Support fleet exercises.			
<b>Accomplishments/Planned Programs Subtotals</b>	12.269	11.821	21.417

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

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2622: <i>Minesweeping Sys Replacement, LV079</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.114	21.122	Continuing	Continuing

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 3123: <i>SMCM UUV</i>
---	---	---

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/1600: <i>LCS MODULES, LM001</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.114	21.122	Continuing	Continuing

**D. Acquisition Strategy**

An acquisition program was initiated in FY11 to develop Surface Mine Countermeasure Unmanned Undersea Vehicles (SMCM UUV) equipped with Low Frequency Broadband (LFBB) sonar that provides buried mine detection capability. Initial procurement of the SMCM UUV with LFBB begins in FY16.

**E. Performance Metrics**

Successful Milestone C in Q1 FY16.  
Reach Full Rate Production Decision in Q2 FY17.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 3123: <i>SMCM UUV</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SMCM UOES Development	C/CPAF	BLUEFIN:CAMBRIDGE, MA	14.844	0.555	Dec 2011	-		-		-	Continuing	Continuing	Continuing
SMCM UUV Development	C/PIIF	Various:Various	17.033	-		-		-		-	0.000	17.033	
SMCM UUV Development 2	C/PIIF	General Dynamics AIS:McLeansville, NC	9.800	6.822	Dec 2011	16.719	Dec 2012	-		16.719	Continuing	Continuing	Continuing
Software Development	WR	NSWC, PC:PANAMA CITY, FL	0.805	-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			42.482	7.377		16.719		-		16.719			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Engineering Support 1	WR	NSWC, PC:PANAMA CITY, FL	8.599	2.421	Dec 2011	2.471	Dec 2012	-		2.471	Continuing	Continuing	Continuing
Engineering Support 2	WR	NUWC, Newport:NEWPORT, RI	2.415	0.649	Dec 2011	0.777	Dec 2012	-		0.777	Continuing	Continuing	Continuing
Engineering Support 3	WR	VARIOUS:VARIOUS	1.158	0.401	Dec 2011	0.764	Dec 2012	-		0.764	Continuing	Continuing	Continuing
<b>Subtotal</b>			12.172	3.471		4.012		-		4.012			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	NOMWC:STENNIS, MI	0.456	0.070	Dec 2011	-		-		-	Continuing	Continuing	Continuing
Government T&E Support	WR	VARIOUS:VARIOUS	0.985	0.228	Dec 2011	-		-		-	Continuing	Continuing	Continuing
Test and Evaluation	WR	COMOPTEVFOR:NORFOLK, VA	0.266	0.125	Dec 2011	0.125	Dec 2012	-		0.125	Continuing	Continuing	Continuing
<b>Subtotal</b>			1.707	0.423		0.125		-		0.125			

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy	<b>DATE:</b> February 2012
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 3123: <i>SMCM UUV</i>
---	---	---

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Program Management Support	C/CPFF	VARIOUS:WASHINGTON, DC	1.543	0.500	Dec 2011	0.511	Dec 2012	-		0.511	Continuing	Continuing	Continuing	
Travel	WR	NAVSEA:WNY, DC	0.150	0.050	Dec 2011	0.050	Dec 2012	-		0.050	Continuing	Continuing	Continuing	
Acquisition Workforce	WR	VARIOUS:VARIOUS	0.047	-		-		-		-	0.000	0.047		
<b>Subtotal</b>			1.740	0.550		0.561		-		0.561				
			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>		<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			58.101	11.821		21.417		-		21.417				

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile:** PB 2013 Navy

**DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**

1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**

PE 0603502N: *Surface & Shallow Water MCM*

**PROJECT**

3123: *SMCM UUV*

SMCM UUV	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
<b>SMCM UUV UOES</b>																													
Dual Frequency SAS Development	████████████████																												
Dual Freq SAS Fleet Experimentation			████████████████	████████████████	████████████████	████████████████	████████████████	████████████████																					
<b>SMCM UUV Acquisition Program</b>																													
SMCM UUV Milestones			▲ MS B																	▲ MS C									
SMCM UUV Contract Award			▲ E&MD																										
SMCM UUV/SMCM Development			████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████	████████████████										
SMCM UUV Design Reviews							▲ PDR				▲ CDR																		
SMCM UUV Test Events															██████████ DT/OA	██████████						██████████ OT	██████████						
SMCM UUV LRIP																					████████████████	████████████████	████████████████	████████████████					
SMCM UUV Full Rate Production Decision																													
SMCM UUV Full Rate Production																													
P3I																													

2013PB - 0603502N - 3123

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 3123: <i>SMCM UUV</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>SMCM UUV</b>				
SMCM UUV UOES: Dual Frequency SAS Development:	1	2011	4	2011
SMCM UUV UOES: Dual Freq SAS Fleet Experimentation:	4	2011	4	2012
SMCM UUV Acquisition Program: SMCM UUV Milestones: Milestone B	4	2011	4	2011
SMCM UUV Acquisition Program: SMCM UUV Milestones: Milestone C	1	2016	1	2016
SMCM UUV Acquisition Program: SMCM UUV Contract Award:	4	2011	4	2011
SMCM UUV Acquisition Program: SMCM UUV/SMCM Development:	4	2011	4	2015
SMCM UUV Acquisition Program: SMCM UUV Design Reviews: Preliminary Design Review	3	2012	3	2012
SMCM UUV Acquisition Program: SMCM UUV Design Reviews: Critical Design Review	2	2013	2	2013
SMCM UUV Acquisition Program: SMCM UUV Test Events: DT/OA	1	2015	3	2015
SMCM UUV Acquisition Program: SMCM UUV Test Events: OT	3	2016	1	2017
SMCM UUV Acquisition Program: SMCM UUV LRIP:	2	2016	2	2017
SMCM UUV Acquisition Program: SMCM UUV Full Rate Production Decision:	2	2017	2	2017
SMCM UUV Acquisition Program: SMCM UUV Full Rate Production:	3	2017	4	2017
SMCM UUV Acquisition Program: P3I:	1	2016	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 4025: <i>Expendable Mine Neutralization System</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
4025: <i>Expendable Mine Neutralization System</i>	0.048	-	-	-	-	-	-	-	-	0.000	0.048
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Expendable Mine Neutralization System (EMNS) is a replacement to the existing AN/SLQ-48 Mine Neutralization System (MNS). The current program replaces the MNS with EMNS on the 14 MCM Avenger Class Ships. EMNS will leverage off of on-going efforts in the Airborne Mine Countermeasures Program to develop an Airborne Mine Neutralization System (AMNS).

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Management	0.048	-	-
<b>Articles:</b>	0		
<b>FY 2011 Accomplishments:</b> Provide program management support			
<b>Accomplishments/Planned Programs Subtotals</b>	0.048	-	-

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2622: <i>MINESWEEPING SYS REPLACEMENT, LV076 (EMNS)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• WPN/4225: <i>AIRBORNE MCM, AM080 (EMNS)</i>	3.949	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.949

**D. Acquisition Strategy**

Based on the approved Common Neutralizer Strategy, the Archerfish neutralizer will be integrated on the MCM-1 Avenger Class Ships. The acquisition strategy will be full and open competition for non-neutralizer hardware development and system integration with a directed contractual relationship with VCT (flight control software). The Navy awarded a sole source contract to BAE Systems for Common Neutralizer support, integration, and hardware manufacturing/delivery. All EMNS neutralizer equipment and support will be provided by BAE Systems to the Navy. The Navy will provide these assets as GFE to the integration contractor.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 4025: <i>Expendable Mine Neutralization System</i>

**E. Performance Metrics**

Neutralization Capability



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 4025: <i>Expendable Mine Neutralization System</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop Technical and Aquisition Documentation	WR	NSWC, PC:Panama City, FL	2.056	-		-		-		-	0.000	2.056	
Hardware/Software Development	C/CPIF	Lockheed Martin:Syracuse, NY	10.185	-		-		-		-	0.000	10.185	
Common Neutralizer Development	C/CPIF	Raytheon:Portsmouth, RI	2.431	-		-		-		-	0.000	2.431	
Deep Water Neutralizer Development	WR	NSWC, PC:Panama City, FL	-	-		-		-		-	0.300	0.300	
Deep Water Neutralizer Development	C/CPIF	BAE Systems:UK	-	-		-		-		-	3.000	3.000	
<b>Subtotal</b>			14.672	-		-		-		-	3.300	17.972	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Develop Logistics Products	C/CPIF	Lockheed Martin:Syracuse, NY	3.078	-		-		-		-	0.000	3.078	
Develop Logistics Products	WR	NSWC:Panama City, FL	1.202	-		-		-		-	0.000	1.202	
Engineering Support	C/CPIF	Lockheed Martin:Syracuse, NY	3.222	-		-		-		-	0.000	3.222	
Engineering Support	C/CPIF	NSWC:Panama City, FL	8.208	-		-		-		-	0.000	8.208	
Deep Water Neutralizr ILS	C/CPIF	BAE Systems:UK	-	-		-		-		-	0.252	0.252	
Deep Water Neutralizr ILS	C/FP	NSWC, PC:Panama City, FL	-	-		-		-		-	0.186	0.186	
Deep Water Neutralizer Engineering	C/CPIF	BAE Systems:UK	-	-		-		-		-	2.200	2.200	
Deep Water Neutralizer Engineering	WR	NSWC, PC:Panama City, FL	-	-		-		-		-	0.860	0.860	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>	<b>PROJECT</b> 4025: <i>Expendable Mine Neutralization System</i>
---	---	--

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			15.710	-		-		-		-	3.498	19.208	

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Develop TEMP	WR	NSWC, PC:Panama City, FL	0.100	-		-		-		-	0.000	0.100	
CT/DT	C/CPIF	Lockheed Martin:Syracuse, NY	1.772	-		-		-		-	0.000	1.772	
CT/DT	WR	NSWC, PC:Panama City, FL	2.604	-		-		-		-	0.000	2.604	
Operational Test & Evaluation	WR	COTF:Norfolk, VA	-	-		-		-		-	0.000	0.000	
Common Neutralizer Testing	C/CPIF	Raytheon:Portsmouth, RI	-	-		-		-		-	0.000	0.000	
Common Neutralizer Test Sets	C/CPIF	Raytheon:Portsmouth, RI	-	-		-		-		-	0.000	0.000	
Deep Water Neutralizer T&E	C/CPIF	BAE System:UK	-	-		-		-		-	0.995	0.995	
Deep Water Neutralizer T&E	WR	NSWC, PC:Panama City, FL	-	-		-		-		-	2.295	2.295	
<b>Subtotal</b>			4.476	-		-		-		-	3.290	7.766	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPFF	CACI:Arlington, VA	1.671	-		-		-		-	0.000	1.671	
Travel	WR	NAVSEA:Washington, DC	0.290	-		-		-		-	0.000	0.290	
<b>Subtotal</b>			1.961	-		-		-		-	0.000	1.961	

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603502N: <i>Surface &amp; Shallow Water MCM</i>			<b>PROJECT</b> 4025: <i>Expendable Mine Neutralization System</i>			
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
<b>Project Cost Totals</b>	36.819	-	-	-	-	10.088	46.907		

**Remarks**

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	49.625	118.764	93.346	-	93.346	81.156	31.956	33.821	24.054	Continuing	Continuing
0225: <i>Surface Ship Torpedo Defense (SSTD)</i>	49.625	118.764	93.346	-	93.346	81.156	31.956	33.821	24.054	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Surface Ship Torpedo Defense (SSTD) program provides a detect-to-engage hardkill torpedo defense capability through two development programs. The Countermeasure Anti-Torpedo (CAT) program develops a canisterized Anti-Torpedo Torpedo (ATT) as an ACAT II program. The Torpedo Warning System (TWS) develops the required ship systems as an ACAT III program. Additionally, the program will require fielding of the AN/SLQ-25X (NIXIE) (Previously identified as AN/SLQ-25D) system as a tow point for the TWS towed sensors. This requires interfacing NIXIE power and data transfer with the TWS.

The program will focus on first providing torpedo defense capability to High Value Units (HVV). The SSTD system will be installed on one CVN and one Combat Logistics Force (CLF) ship (both HVVs) with initial operational capability (IOC) in FY 2018.

Additionally, the program will develop and field six surface ship torpedo defense prototype systems (TWS/CAT) on CVNs. Each prototype consists of one TWS and 10 CATs. The 6 systems are required to be accelerated due to the lack of torpedo defense on HVVs which has been exacerbated by recent real-world events and evolving threats. The systems provide a hard-kill torpedo defense capability in advance of the IOC as part of the program of record. To accomplish this effort, the department reprogrammed \$9.9 million of FY 2010 funds and received a prior approval reprogramming for an additional \$7.9 million of FY 2010 funds. The first two prototypes are expected to deliver in FY14, two systems in FY15, and two systems in FY16.

Finally, the program will deliver one hybrid prototype system in FY 13. This is in addition to the six prototype systems discussed above. The system will deliver some capability to a forward deployed CVN asset before the first prototype system is available.

At-sea demonstrations of the Torpedo Detection Classification and Localization (TDCL) systems conducted in FY06 through FY09 led to a CRUDES TDCL draft system specification in FY09 which is being modified to accommodate installation of a system for HVVs. Additionally, in 2nd Qtr FY10, prototype TDCL systems were tested at sea to collect data to characterize the ability of towed active and passive sonar arrays to detect and track threat targets both actively and passively in adverse conditions. System manufacturing readiness levels indicate FY18 as most acceptable risk for delivery.

Successful at-sea testing of the Anti-Torpedo Torpedo Engineering Development Model (EDM-1) in FY06 through FY09 facilitates completion of the ATT EDM-2 design in early FY12. The EDM-2 design will be the ATT included in the six fielded prototype systems.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>
---	--

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	57.796	118.764	83.739	-	83.739
Current President's Budget	49.625	118.764	93.346	-	93.346
Total Adjustments	-8.171	-	9.607	-	9.607
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.913	-			
• Program Adjustments	-	-	9.898	-	9.898
• Rate/Misc Adjustments	-	-	-0.291	-	-0.291
• Congressional General Reductions Adjustments	-0.258	-	-	-	-
• Congressional Directed Reductions Adjustments	-7.000	-	-	-	-

**Change Summary Explanation**

Technical and Schedule: Congress reduced FY 11 funding due to MS B delay. Added FY 10 funds in support of surface ship torpedo defense (SSTD) prototype systems commensurate with PB 12 program redirection. Accelerated the IOC for CAT from FY 2021 to FY 2018 and delayed the IOC for the TWS from FY 2017 to 2018 to better align capabilities. Added funds in FY 2103 to support the hybrid prototype system.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>				<b>PROJECT</b> 0225: <i>Surface Ship Torpedo Defense (SSTD)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0225: <i>Surface Ship Torpedo Defense (SSTD)</i>	49.625	118.764	93.346	-	93.346	81.156	31.956	33.821	24.054	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Surface Ship Torpedo Defense (SSTD) program provides a detect-to-engage hardkill torpedo defense capability through two development programs. The Countermeasure Anti-Torpedo (CAT) program develops a canisterized Anti-Torpedo Torpedo (ATT) as an ACAT II program. The Torpedo Warning System (TWS) develops the required ship systems as an ACAT III program. The system also requires fielding the AN/SLQ-25X (NIXIE) system (previously called the AN/SLQ-25D) as a tow point for the TWS towed sensors. This requires interfacing NIXIE power and data transfer with TWS.

SSTD system will be installed on one CVN and one Combat Logistics Force (CLF) ship (both HVUs) with an IOC of FY2018. The first increment of the CAT will be installed on HVUs in FY2018.

Additionally, the program will develop and field six prototype surface ship torpedo defense prototype systems CVNs and one hybrid prototype system on a forward deployed CVN.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Countermeasure Anti-Torpedo (CAT)	28.738	74.892	51.394
<b>Articles:</b>	0	30	15
<b>FY 2011 Accomplishments:</b> Completed ATT EDM-2 detailed design, subsystem and system level testing including fabrication of EDM-1 components unaffected by the EDM-2 design.			
<b>FY 2012 Plans:</b> Continue EDM-2 fabrication in support of subsystem builds and land-based testing. Subsystem testing will support delivery of first technical data package and Baseline EDM-2 Design. Continue Insensitive Munitions testing, firing module Qualification Testing and mechanical Integration Testing. Continue conducting Weapons System Explosive Safety Review Board (WSESRB) review of the CAT program.			
<b>FY 2013 Plans:</b> Complete the CAT technical data package. Complete land based testing of EDM-2 and start CAT in-water testing. Conduct initial subsystem integration testing. Procure materials for prototype delivery to include AURE and warhead. Complete fabrication of			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>	<b>PROJECT</b> 0225: <i>Surface Ship Torpedo Defense (SSTD)</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
subsystems for EDM-2 CATs in support of early prototype delivery in FY14. Complete shipyard and Alteration Installation Team (AIT) installation of Hybrid Prototype System on a forward deployed CVN.			
<p><b>Title:</b> Torpedo Warning System (TWS)</p> <p align="right"><b>Articles:</b></p>	18.800 0	41.872 3	40.952 1
<p><b>FY 2011 Accomplishments:</b> Completed design and build of towed sensor EDM to be tested in FY12. Developed Torpedo Detection Classification and Localization (TDCL) algorithms.</p> <p><b>FY 2012 Plans:</b> Conduct lake testing for towed array performance evaluation. Continue development of Torpedo Detection Classification and Localization (TDCL) algorithms. Commence design of fire control and CAT ready-stowage racks for the HVU application.</p> <p><b>FY 2013 Plans:</b> Continue fire control and CAT ready-stowage racks design and testing. Conduct sea test on sensors and algorithms developed in FY11 and FY12. Complete fabrication of EDM prototype systems in support of early prototype delivery in FY14.</p>			
<p><b>Title:</b> AN/SLQ-25X (previously AN/SLQ-25D)</p> <p align="right"><b>Articles:</b></p>	2.087 3	2.000 0	1.000 0
<p><b>FY 2011 Accomplishments:</b> Developed combined Acquisition Strategy and Acquisition Plan in support of RFP issued for AN/SLQ-25X procurement.</p> <p><b>FY 2012 Plans:</b> Issue competitive contract for development and procurement of two AN/SLQ-25X systems to support FY14 testing of TWS systems.</p> <p><b>FY 2013 Plans:</b> Complete development of AN/SLQ-25X and Capability Design Review.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	49.625	118.764	93.346

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
Line Item	FY 2011	FY 2012	FY 2013	FY 2013	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN/221300: SSTD	0.000	1.257	10.716	0.000	10.716	12.402	18.251	17.174	28.713	222.248	439.058
• WPN/311300: SSTD	2.500	0.000	2.700	0.000	2.700	2.698	26.796	29.096	26.099	Continuing	Continuing



UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>	<b>PROJECT</b> 0225: <i>Surface Ship Torpedo Defense (SSTD)</i>

**D. Acquisition Strategy**

CAT Program: Under the ATTDS program In FY09 and FY10, the CAT project completed a Systems Requirements Review (SRR) and Preliminary Design Review (PDR) on the second Engineering Development Model (EDM-2) design. The Applied Research Laboratory (ARL) is now preparing the detailed EDM-2 design. ARL will complete the EDM-2 design in early FY12. A Critical Design Review (CDR) will be held after the design is complete. ARL will fabricate test articles and 60 total EDM-2 CATs in support of the prototype fielding. Integration testing will begin in FY13 and continue through delivery of the prototype CATs. A complete Technical Data Package (TDP) will be prepared. With the shift in IOC to FY18, program will enter Milestone C decision in late FY14 (as a result of CAT IOC shift to FY18, acquisition strategy changed to enter acquisition process at Milestone C). Additionally, in late FY14 a competitive fixed price contract will be awarded to build Low Rate Initial Production (LRIP) units. These will support Operational Testing beginning in FY17 for an FY18 IOC.

TWS Program: In FY09 and FY10, a towed sensor system specification was developed and 2 sea tests were conducted on Navy destroyers that demonstrated the ability of three different passive sonar ranging techniques and demonstrated the benefit of new torpedo detection sonar waveforms. Data from these tests is being applied to the HVU application, and the sensor specification is being modified to meet the increased capability required for HVU ships. Development and production of the new sensors is being conducted by 3 Phoenix and Ultra Ocean Systems. A complete sensor set was delivered in 2nd QTR FY12 to support an at sea test in the 3rd QTR FY12. At the same time, a ready-stowage rack, and fire control systems are being developed by NUWC and NSWC. All of these components will be brought together for integration in FY13. This integration will support fabrication and fielding of the prototype systems. Land based integration with the AN/SLQ-25X system is planned in FY14. This testing will inform a Milestone C decision in late FY14. A single competitive contract will be awarded for TWS LRIP systems to support Operational Testing with an FY18 IOC.

AN/SLQ-25X System: The AN/SLQ-25X system specification (cabinet, winch, tow cable, towed body) for integration with the previous ATTDS program was completed in 2nd QTR FY10. This specification was modified for integration with the TWS system for use on HVU ships. This specification was used for a competitive contract RFP in FY11 to develop and build two AN/SLQ-25X systems. This contract will use FY12 RDT&E funding to accomplish the engineering development and FY10 OPN to build the systems. The first system will deliver in 4th QTR FY13 and will be installed on a CVN ship to support TWS testing.

**E. Performance Metrics**

- Torpedo Effectiveness for the CAT
- Torpedo Detection Classification and Localization (TDCL) False Alert Rate
- TDCL probability of correct classification
- TWS System Availability

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>	<b>PROJECT</b> 0225: <i>Surface Ship Torpedo Defense (SSTD)</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Systems Engineering	WR	NUWC:Newport, RI	27.304	4.500	Nov 2011	5.600	Nov 2012	-		5.600	Continuing	Continuing	Continuing
Systems Engineering ATT Dev.	C/CPFF	PSU/ARL:State College, PA	128.499	48.800	Nov 2011	34.338	Nov 2012	-		34.338	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	JHU/APL:Baltimore, MD	1.740	0.400	Feb 2012	0.200	Feb 2013	-		0.200	Continuing	Continuing	Continuing
Systems Engineering Warhead Dev.	WR	NSWC:Indian Head, MD	34.841	12.100	Nov 2011	12.100	Nov 2012	-		12.100	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC:Keyport, WA	14.775	8.000	Nov 2011	11.300	Nov 2012	-		11.300	Continuing	Continuing	Continuing
Systems Engineering TDCL	C/CPFF	Ultra:Braintree, MA	11.640	5.000	Feb 2012	3.000	Feb 2013	-		3.000	0.000	19.640	Continuing
Systems Engineering ATT	WR	ONR:Arlington, VA	1.680	0.100	Jan 2012	0.100	Jan 2013	-		0.100	Continuing	Continuing	Continuing
Systems Engineering TDCL	C/CPFF	AAC:Hauppauge, NY	3.830	-		0.200	Jan 2013	-		0.200	0.000	4.030	Continuing
Systems Engineering	WR	OPTEVFOR:Norfolk, VA	0.743	0.150	Feb 2012	0.150	Feb 2013	-		0.150	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	ArgonST:Manassas, VA	0.800	-		-		-		-	0.000	0.800	Continuing
Systems Engineering TDCL	WR	NSWC:Dahlgren, VA	5.247	2.000	Nov 2011	1.500	Nov 2012	-		1.500	0.000	8.747	Continuing
Systems Engineering TDCL	WR	SPAWAR:San Diego, CA	1.320	1.000	Dec 2011	1.000	Dec 2012	-		1.000	0.000	3.320	Continuing
Systems Engineering	C/CPFF	UT/ARL:Not Specified	0.600	0.250	Feb 2012	0.500	Feb 2013	-		0.500	0.000	1.350	Continuing
Systems Engineering	C/CPFF	Alion:Bridgeport, CT	2.526	3.784	Dec 2011	3.700	Dec 2012	-		3.700	0.000	10.010	Continuing
Systems Engineering	WR	NUWC DET:Norfolk, VA	2.525	2.300	Nov 2011	2.300	Nov 2012	-		2.300	0.000	7.125	
Systems Development	C/CPFF	3 Phoenix:Fairfax, VA	14.904	26.780	Dec 2011	14.358	Dec 2012	-		14.358	0.000	56.042	Continuing
Integrated Logistic Spt	WR	NSWC Crane:Crane, IN	0.384	0.350	Dec 2011	0.350	Dec 2012	-		0.350	0.000	1.084	Continuing
Prototype Development	C/FFP	TBD:TBD	2.087	0.500	Dec 2011	-		-		-	0.000	2.587	
<b>Subtotal</b>			255.445	116.014		90.696		-		90.696			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Earned Value Mgmt Spt	C/CPAF	Pioneer:Virigina	0.050	0.250	Dec 2011	0.250	Dec 2012	-		0.250	0.000	0.550	



**APPROPRIATION/BUDGET ACTIVITY**

1319: Research, Development, Test & Evaluation, Navy  
 BA 4: Advanced Component Development & Prototypes (ACD&P)

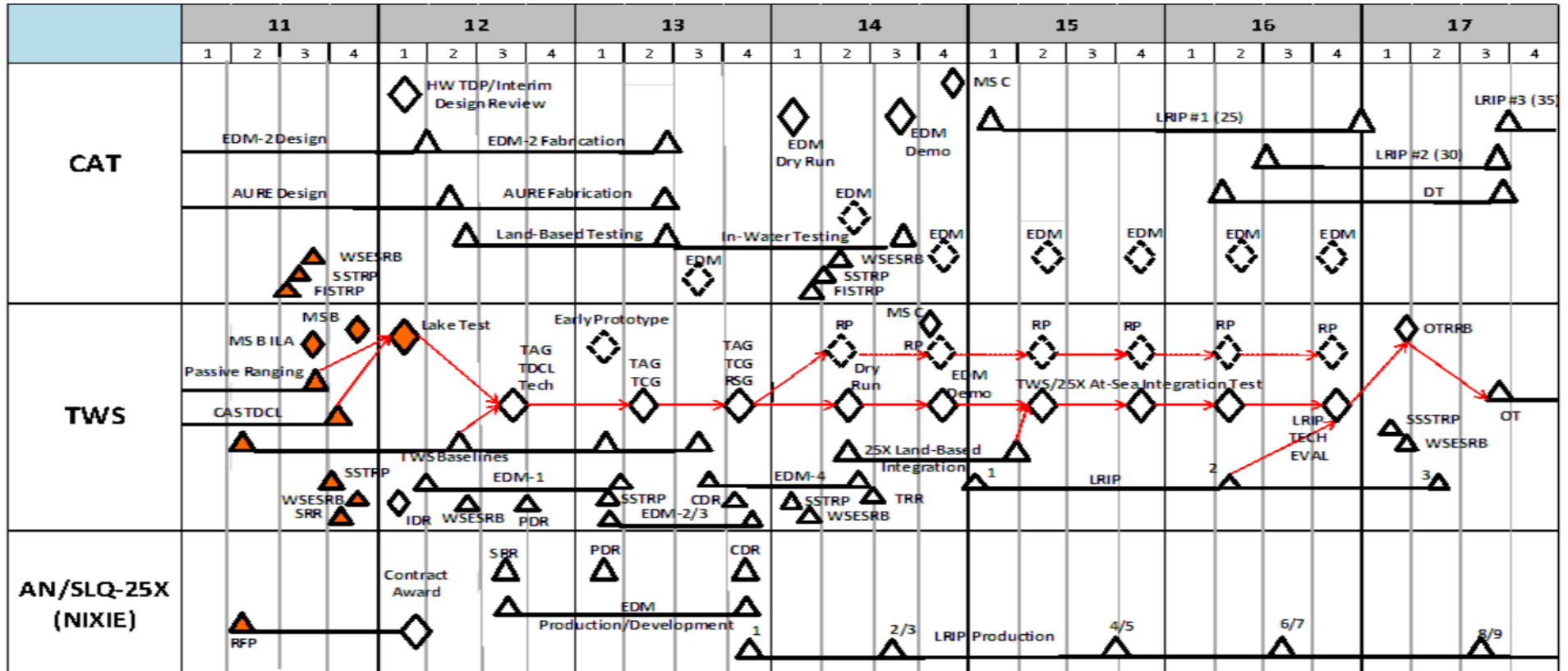
**R-1 ITEM NOMENCLATURE**

PE 0603506N: Surface Ship Torpedo Defense

**PROJECT**

0225: Surface Ship Torpedo Defense (SSTD)

## Surface Ship Torpedo Defense Planning Schedule



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>	<b>PROJECT</b> 0225: <i>Surface Ship Torpedo Defense (SSTD)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0225</b>				
AN/SLQ-25X: AN/SLQ-25X - RFP	2	2011	1	2012
AN/SLQ-25X: AN/SLQ-25X - CONTRACT AWARD	1	2012	1	2012
AN/SLQ-25X: AN/SLQ-25X - PRODUCTION UNITS 1 & 2 (EDM)	3	2012	4	2013
AN/SLQ-25X: AN/SLQ-25X SRR	3	2012	3	2012
AN/SLQ-25X: AN/SLQ-25X - PDR	1	2013	1	2013
AN/SLQ-25X: AN/SLQ-25X - CAPABILITY DESIGN REVIEW (CDR)	4	2013	4	2013
AN/SLQ-25X: AN/SLQ-25X - PRODUCTION	4	2013	4	2017
TWS: TWS - Passive Ranging	1	2011	3	2011
TWS: TWS - CAS TDCL	1	2011	4	2011
TWS: TWS - MS B ILA	3	2011	3	2011
TWS: TWS - TWS Baselines	2	2011	3	2013
TWS: TWS - System Readiness Review (SRR)	4	2011	4	2011
TWS: TWS - SSTRP	4	2011	4	2011
TWS: TWS - WSESRB	4	2011	4	2011
TWS: TWS - Milestone B	4	2011	4	2011
TWS: TWS - Lake Test	1	2012	1	2012
TWS: TWS - Integrated Design Review (IDR)	1	2012	1	2012
TWS: EDM-1	1	2012	2	2013
TWS: TWS - WSESRB2	2	2012	2	2012
TWS: TWS - Torpedo Acquisition Group (TAG) TDCL Tech	3	2012	3	2012
TWS: TWS - Preliminary Design Review (PDR)	3	2012	3	2012

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>	<b>PROJECT</b> 0225: <i>Surface Ship Torpedo Defense (SSTD)</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
TWS: TWS - SSTRP2	1	2013	1	2013
TWS: TWS - EDM-2/3	1	2013	4	2013
TWS: TWS - TAG TCG	2	2013	2	2013
TWS: TWS - EDM-4	3	2013	2	2014
TWS: TWS - TAG TCG Ready Stow Group (RSG)	4	2013	4	2013
TWS: TWS - Capability Design Review (CDR)	4	2013	4	2013
TWS: TWS - SSSTRP3	1	2014	1	2014
TWS: TWS - WSESRB3	1	2014	1	2014
TWS: TWS - Technical Readiness Review (TRR)	2	2014	2	2014
TWS: TWS - 25X Integration	2	2014	2	2015
TWS: TWS - EDM Dry Run	2	2014	2	2014
TWS: TWS - RP	2	2014	2	2014
TWS: TWS - EDM Demo	4	2014	4	2014
TWS: TWS - Milestone C	4	2014	4	2014
TWS: TWS - LRIP	1	2015	2	2017
TWS: TWS - TWS/25X In Water Tests	2	2015	4	2016
TWS: TWS - LRIP Tech Eval	4	2016	4	2016
TWS: TWS - SSSTRP4	1	2017	1	2017
TWS: TWS - WSESRB4	1	2017	1	2017
TWS: TWS - OT	3	2017	4	2017
CAT: CAT - EDM-2 Design	1	2011	1	2012
CAT: CAT AURE Design	1	2011	2	2012
CAT: CAT - FABRICATE EDM-2 HARDWARE	1	2012	2	2013
CAT: CAT - HWTDP/IDR	1	2012	1	2012
CAT: CAT - LAND BASED SYSTEM TEST	2	2012	2	2013

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603506N: <i>Surface Ship Torpedo Defense</i>	<b>PROJECT</b> 0225: <i>Surface Ship Torpedo Defense (SSTD)</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CAT: CAT AURE FABRICATION	2	2012	2	2013
CAT: CAT - IN WATER TESTING	2	2013	3	2014
CAT: CAT EDM2 Design Delivery 1 - Hybrid Prototype System	3	2013	3	2013
CAT: CAT FISTRP	1	2014	1	2014
CAT: CAT EDM DRY RUN	1	2014	1	2014
CAT: CAT SSTRP	2	2014	2	2014
CAT: CAT WSESRB	2	2014	2	2014
CAT: CAT EDM2 Design Delivery 2	2	2014	2	2014
CAT: CAT - EDM Demo	3	2014	3	2014
CAT: CAT EDM2 Design Delivery 3	4	2014	4	2014
CAT: CAT - Milestone C	4	2014	4	2014
CAT: CAT - LRIP 1	1	2015	4	2016
CAT: CAT EDM2 Design Delivery 4	2	2015	2	2015
CAT: CAT EDM2 Design Delivery 5	4	2015	4	2015
CAT: CAT - DT	2	2016	3	2017
CAT: CAT EDM2 Design Delivery 6	2	2016	2	2016
CAT: CAT - LRIP 2	3	2016	3	2017
CAT: CAT EDM2 Design Delivery 7	4	2016	4	2016

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	99.704	54.072	108.871	-	108.871	67.139	46.567	47.337	48.185	Continuing	Continuing
2208: <i>CVN 21</i>	30.444	27.817	36.673	-	36.673	37.212	37.685	38.283	38.947	Continuing	Continuing
3216.: <i>Tactical Support Center-Integration</i>	8.507	2.110	9.600	-	9.600	4.593	4.654	4.728	4.817	Continuing	Continuing
4004: <i>EMALS</i>	59.135	22.418	60.861	-	60.861	23.568	2.440	2.507	2.568	Continuing	Continuing
4005: <i>In-Service Carrier Systems Development</i>	1.618	1.727	1.737	-	1.737	1.766	1.788	1.819	1.853	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This Navy unique program addresses all technology areas associated with Navy/Marine Corps aircraft operations aboard ships. The program includes:

- (2208) - Development of ship hull, mechanical, propulsion, electrical, aviation, and combat support systems, subsystems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities, and to meet the requirements of existing and pending regulations and statutes critical to the operation of existing and future aircraft carriers.
  
- (3216) - Development of block upgrades to the MH-60R sensor suite into the AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC). The CV-TSC provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti Submarine Warfare (ASW). Through the integration of off-board sensors and signal, data and display processors, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (S-3B until retirement, SH-60F helicopter). This project provides the development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN air integration efforts.
  
- (4004) - Development of an advanced technology aircraft launch system in support of the CVN 78 Class design and construction schedule. The Electro Magnetic Aircraft Launch System (EMALS) will replace the current steam catapult on CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability and reduced operator and maintainer workload.
  
- (4005) - The In-Service Carrier Systems Development Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>
---	---

development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs (TOC).

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	93.830	54.072	47.867	-	47.867
Current President's Budget	99.704	54.072	108.871	-	108.871
Total Adjustments	5.874	-	61.004	-	61.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	10.000	-			
• SBIR/STTR Transfer	-1.659	-			
• Program Adjustments	-	-	61.197	-	61.197
• Rate/Misc Adjustments	-	-	-0.193	-	-0.193
• Congressional General Reductions Adjustments	-0.467	-	-	-	-
• Congressional Directed Reductions Adjustments	-2.000	-	-	-	-

**Change Summary Explanation**

Cost: Added funding in FY 13 to properly price the EMALS effort. Updated schedule to show completion of all EMALS System Development and Demonstration events in 2Q FY 15, including all life cycle testing. Added funding in FY 11 for EMALS system development and demonstration efforts

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>
---	---	---------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2208: <i>CVN 21</i>	30.444	27.817	36.673	-	36.673	37.212	37.685	38.283	38.947	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 of aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project transitions the most promising technologies from the Navy technology base, other government laboratories, and the private sector into specific advanced development efforts. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to significantly improve aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to support CVN 78 procurement, including, but not limited to engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE).

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> CVN 21 Advanced Technology Design & Development	25.805	20.993	23.861
<b>Articles:</b>	0	0	0
<p><b>Description:</b> -CVN 21 Advanced Technology Design &amp; Development: Continue development and transition of technologies to support CVN 21 Key Performance Parameters (KPPs): maintain sortie generation rate, reductions in manpower, and further recovery of weight and stability service life margins. Continue design activities to integrate the new technologies, such as the new propulsion plant and Electromagnetic Aircraft Launch System into the ship.</p> <p><b>FY 2011 Accomplishments:</b> Technologies and design efforts included transition planning and execution, including finished development work, certification / qualification testing, in-service testing, integrated logistics support, and design integration tasks for all projects in the Critical and Non-Critical Technology portfolios. Efforts also encompass those tasks required to support CVN 78 procurement, including, but not limited to, engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment (IDE).</p> <p><b>FY 2012 Plans:</b> Funding is essential to technical data package development for the insertion of the latest technology and the development of critical systems and components. Technical data packages provide the plan during ship construction to support the delivery of</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>		<b>PROJECT</b> 2208: <i>CVN 21</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
key warfare and aviation systems necessary for ship certification. The development of key systems (such as Machinery Control and Monitoring System) are required for the safety and control of the warfare and key systems on the ship.					
<b>FY 2013 Plans:</b> Funding is essential for the advanced design, development, and program support of critical systems and components. Such critical systems include aviation and warfare, which are essential to ship certification					
<b>Title:</b> CVN 21 - Test & Evaluation (T&E)					
<b>Description:</b> - CVN 21 - Test & Evaluation (T&E)					
<b>FY 2011 Accomplishments:</b> Continued executing IT-1 test phase. Continued developing the process for Full Ship Shock Trial (FSST) Alternative, concentrating on the completion of the LPD 19 Finite Element Model (FEM) and conducting the LPD 19 initial analysis run. Continued developing and revising TEMP 1610, Revision C, adding testing and resource definition to Parts III and IV. Continued collaborative development of Commander, Operational Test and Evaluation's (COTF) Integrated Evaluation Framework (IEF) and the mapping of the requirements, Critical Operational Issues (COIs), Measures of Effectiveness (MOEs) and Measures of Suitability (MOSs) to the test events in the TEMP 1610 Revision C Top-Level Evaluation Framework Matrix to support DT and IOT&E test planning. Continued development and refinement of the Overall Platform Integrated Test Schedule (OP-ITS), based on inputs from the Participating Acquisition Resource Managers (PARMs), the shipbuilder and other stakeholders. Developed a configuration management (CM) process for the OP-ITS and provided periodic updates of the OP-ITS to all stakeholders. Established and co-chaired an Integrated Coordination Team (ICT) with Integrated Warfare Systems (IWS) 10.0 to continue planning for pre- and post-delivery tests and trials with various working groups, the shipbuilder, Supervisor of Shipbuilding (SUPSHIP), Commander, Operational Test and Evaluation (COTF), Deputy Assistant Secretary of Defense (Developmental Test and Evaluation) (DASD (DT&E)) and Director, Operational Test and Evaluation (DOT&E) to ensure that test activities are coordinated, and that testing risks are identified and addressed. Continued to plan and execute electromagnetic environmental effects (E3) testing and analyses for systems deemed to be at risk for these effects. Continued topside E3 risk evaluations. Continued Information Assurance (IA) planning for test and certification of the platform. Developed the Anti-Tamper (AT) Plan Addendum to the Program Protection Plan (PPP). Began development of the Platform Level Vulnerability Assessment Plan (VAP). Collaborated with the Warfare System (WS) Test, Evaluation & Certification (TE&C) team to identify and develop solutions for cross-domain issues. Collaborated with the TEMP 1714 Capstone Enterprise Air Warfare Ship Self-Defense (AW SSD) team to develop/update the test plans, resource requirements and schedules for CVN 78-related testing on the Self-Defense Test Ship (SDTS), as well as the post-delivery AW SSD testing on CVN 78. Continued the analysis of and improvements to the Integrated Strike Planning and Execution Model (ISPEM) and the Virtual Carrier (VCVN) Model to ensure that the Initial Operational Test and Evaluation (IOT&E) requirements for validating the sortie generation rate (SGR) key performance parameter (KPP) are					
		<b>Articles:</b>	4.639 0	6.824 0	12.812 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>met. Conducted SGR Assessment (SGRA) 10. Continued development of SGR validation test strategy with COTF and various stakeholders.</p> <p><b>FY 2012 Plans:</b> Continue development of TEMP 1610, Revision C. Continue collaborative development of the Commander, Operational Test and Evaluation's (COTF) Integrated Evaluation Framework (IEF). Continue mapping the requirements, Critical Operational Issues (COIs), Measures of Effectiveness (MOEs) and Measures of Suitability (MOSs) in the IEF to the test events in the TEMP 1610, Revision C Top-Level Evaluation Framework Matrix. Continue updating the Overall Platform Integrated Test Schedule (OP-ITS), based on inputs from the Participating Acquisition Resource Managers (PARMs), the shipbuilder and other stakeholders. Continue to co-chair the Integrated Coordination Team (ICT) to continue planning for pre- and post-delivery tests and trials with various working groups, the shipbuilder, Supervisor of Shipbuilding (SUPSHIP), Commander, Operational Test and Evaluation (COTF), Deputy Assistant Secretary of Defense (Developmental Test and Evaluation) (DASD (DT&amp;E)) and Director, Operational Test and Evaluation (DOT&amp;E) to ensure that test activities are coordinated, and that testing risks are identified and addressed. Continue developing the process for a Full Ship Shock Trial (FSST) Alternative, concentrating on conducting the second and third LPD 19 Finite Element Model (FEM) analysis runs and comparing the results with the LPD 19 FSST data. Continue executing Integrated Test (IT)-1 test phase, which includes planning and conducting IT-1 Operational Assessment (OA) 1 (formerly OT-B3), producing the IT-1 OA report 1 (IT-1 OAR1) and conducting the following activities: Combat Systems (CS) land-based testing, Dual Band Radar (DBR) land-based testing, electromagnetic environmental effects (E3) testing and analyses for systems deemed to be at risk for these effects, topside E3 risk evaluations, sortie generation rate assessment (SGRA) 11, PEO C4I Test Integration Facility (TIF) testing, NAVAIR Production Integration Facility (PIF) testing, TPX-42 testing and navigation system risk mitigation testing. Continue development of the draft Interoperability Certification Evaluation Plan (ICEP) and begin development of a draft Integrated Architecture Traceability Matrix by the Joint Interoperability Test Command (JITC). Continue development of Platform Level Vulnerability Assessment Plan (VAP). Continue collaboration with the Warfare System (WS) Test, Evaluation &amp; Certification (TE&amp;C) team to identify and develop solutions for cross-domain issues. Continue the analysis of and improvements to the Integrated Strike Planning and Execution Model (ISPEM) and the Virtual Carrier (VCVN) Model to ensure that the Initial Operational Test and Evaluation (IOT&amp;E) requirements for validating the sortie generation rate (SGR) key performance parameter (KPP) are met. Continue development of SGR validation test strategy with COTF and various stakeholders.</p> <p><b>FY 2013 Plans:</b> Complete development and deliver the TEMP 1610, Revision C for final approval. Continue updating and maintaining configuration management of the Overall Platform Integrated Test Schedule (OP-ITS). Continue to co-chair the Integrated Coordination Team (ICT) focusing on pre- and post-launch activities with various working groups, ship's force, the shipbuilder, Supervisor of Shipbuilding (SUPSHIP), Commander, Operational Test and Evaluation (COTF), Deputy Assistant Secretary of Defense (Developmental Test and Evaluation) (DASD (DT&amp;E)) and Director, Operational Test and Evaluation (DOT&amp;E). Continue the Full Ship Shock Trial (FSST) Alternative process development by completing the LPD 19 analyses and results</p>			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>
---	---	---------------------------------------

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
validation, and by re-starting the CVN 71 finite element model (FEM) development, the CG 48 analysis runs, the augmented shock qualification testing and drafting the CVN 78 FSST Alternative Gate Review Plan and the CVN 78 FSST Alternative Process Analysis and Shock Event Plan. Complete the Integrated Test - Phase 1 (IT-1), which includes planning and conducting IT-1 Operational Assessment (OA) 2, producing the IT-1 OA report 2 (IT-1 OAR2) and the IT-1 Developmental Test Report (IT-1 DT RPT). Commence IT-2 test phase, which includes Launch, Combat Systems (CS) land-based testing, Dual Band Radar (DBR) land-based testing, electromagnetic environmental effects (E3) testing and analyses for systems deemed to be at risk for these effects, topside E3 risk evaluations, sortie generation rate assessment (SGRA) 12, PEO C4I Test Integration Facility (TIF) testing, NAVAIR Production Integration Facility (PIF) testing, TPX-42 testing, Consolidated Afloat Networks and Enterprise Services (CANES) testing, navigation integration testing and Advanced Weapons Elevator (AWE) testing.			
<b>Accomplishments/Planned Programs Subtotals</b>	30.444	27.817	36.673

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• BLI 200100: <i>Carrier Replacement Program</i>	2,615.756	554.798	608.195	0.000	608.195	666.129	2,999.085	1,662.208	2,867.641	13,154.058	36,797.384
• BLI 530000: <i>Completion of Prior Year Shipbuilding Programs (CVN 78)</i>	0.000	0.000	0.000	0.000	0.000	449.000	362.000	0.000	0.000	0.000	811.000

**D. Acquisition Strategy**

The CVN 78 is the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system (EMALS), advanced arresting gear (AAG) system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship self-defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

**E. Performance Metrics**

Successfully execute Integrated Test - Phase 1 (IT-1) Operational Assessment (OA) 1 (formerly OT-B3). Successfully complete IT-1 OA Report 1 (IT-1 OAR1). Complete development and obtain final approval of TEMP 1610 Revision C. Successfully execute Integrated Test - Phase 1 and IT-1 OA2. Complete development and issue IT-1OAR2 and IT-1 Developmental Test Report (IT-1 DT RPT). Successfully conduct and support feasibility and tradeoff studies and data packages on new and modified shipboard systems, technologies and proposed modification. Data packages shall include information to support program decisions to integrate these

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>
<p>efforts into the whole ship design efforts. Successfully conduct IDC shock testing and reporting in order to finalize IDC R&amp;D efforts. Successfully complete Advanced Weapons Elevator Shock and Electromagnetic Interference (EMI) Test qualifications. Successfully complete Plasma Arc Waste Destruction System (PAWDS) Land-Based Test. Successfully create and deliver 21 Decision Memorandums (DM) for Bents/Bays 1-21.on the 03 Level (Gallery Deck) with Layer 31 information. This effort includes comment and adjudication for each ODWG delivered DM. Successfully develop the baseline Technical Data Packages for 39 systems and mature packages in preparation for final GFI arrival.</p>		

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>
---	---	---------------------------------------

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Propulsion Plant Development	SS/CPFF	Bettis:PA	71.627	-		-		-		-	0.000	71.627	
Propulsion Plant Development	C/CPFF	HII:VA	164.409	-		-		-		-	0.000	164.409	
Propulsion Plant Development	Various	Miscellaneous:Various	10.562	-		-		-		-	0.000	10.562	
Propulsion Plant Development	WR	NSWC Carderock:MD	0.050	-		-		-		-	0.000	0.050	
Advanced Design & Development	C/CPAF	HII:VA	165.844	0.352	Oct 2011	8.197	Oct 2012	-		8.197	0.000	174.393	
Advanced Design & Development	WR	NSWC Carderock:MD	73.142	1.033	Oct 2011	-		-		-	0.000	74.175	
Advanced Design & Development	C/CPFF	SAIC:NM	49.488	0.180	Nov 2011	0.188	Nov 2012	-		0.188	0.000	49.856	
Advanced Design & Development	WR	NAWCAD Patuxent River:MD	50.538	3.165	Oct 2011	3.951	Oct 2012	-		3.951	0.000	57.654	
Advanced Design & Development	WR	NAWC Lakehurst:NJ	8.189	-		-		-		-	0.000	8.189	
Advanced Design & Development	WR	NSWC Dahlgren:VA	27.734	3.328	Oct 2011	3.343	Oct 2012	-		3.343	0.000	34.405	
Advanced Design & Development	C/CPAF	Raytheon:MA	33.042	4.841	Dec 2011	4.953	Dec 2012	-		4.953	0.000	42.836	
Advanced Design & Development	WR	NSWC Port Hueneme:CA	5.939	0.050	Oct 2011	-		-		-	0.000	5.989	
Advanced Design & Development	WR	SPAWAR:CA	10.487	0.445	Oct 2011	0.637	Oct 2012	-		0.637	0.000	11.569	
Advanced Design & Development	C/CPFF	NAVSEA Seaport:DC	29.828	4.695	Dec 2011	2.413	Dec 2012	-		2.413	0.000	36.936	
Advanced Design & Development	Various	Miscellaneous:Various	40.140	2.904	Oct 2011	0.179	Oct 2012	-		0.179	0.000	43.223	
<b>Subtotal</b>			741.019	20.993		23.861		-		23.861	0.000	785.873	

**Remarks**  
Northrop Grumman spun off its shipbuilding sector and effective 14 April 2001 officially became Huntington Ingalls Industries (HII)



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>
---	---	---------------------------------------

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	C/CPAF	HII:VA	9.835	0.671	Dec 2011	1.650	Dec 2012	-		1.650	0.000	12.156	
Developmental Test & Evaluation	WR	NAWCAD Patuxent River:MD	16.294	2.250	Nov 2011	2.700	Oct 2012	-		2.700	0.000	21.244	
Developmental Test & Evaluation	WR	NSWC Dahlgren:VA	3.810	0.301	Nov 2011	0.348	Oct 2012	-		0.348	0.000	4.459	
Developmental Test & Evaluation	WR	NSWC Carderock:MD	10.337	0.040	Nov 2011	3.843	Oct 2012	-		3.843	0.000	14.220	
Developmental Test & Evaluation	WR	SPAWAR:CA	3.417	0.330	Nov 2011	0.630	Oct 2012	-		0.630	0.000	4.377	
Developmental Test & Evaluation	C/CPFF	NAVSEA SeaPort:DC	0.143	-		-		-		-	0.000	0.143	
Developmental Test & Evaluation	C/CPAF	Raytheon:Not Specified	2.007	0.665	Dec 2011	0.770	Dec 2012	-		0.770	0.000	3.442	
Developmental Test & Evaluation	Various	Miscellaneous:Various	10.197	1.584	Nov 2011	1.874	Oct 2012	-		1.874	0.000	13.655	
Operational Test & Evaluation	WR	COMOPTEVFOR:VA	3.637	0.983	Nov 2011	0.997	Oct 2012	-		0.997	0.000	5.617	
<b>Subtotal</b>			59.677	6.824		12.812		-		12.812	0.000	79.313	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DAWF	Various	Various:Various	0.275	-		-		-		-	0.000	0.275	
<b>Subtotal</b>			0.275	-		-		-		-	0.000	0.275	

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			800.971	27.817		36.673		-		36.673	0.000	865.461	

**Remarks**

**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy																						DATE: February 2012										
APPROPRIATION/BUDGET ACTIVITY										R-1 ITEM NOMENCLATURE								PROJECT														
1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)										PE 0603512N: Carrier Systems Development								2208: CVN 21														
Fiscal Year	2011				2012				2013				2014				2015				2016				2017							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																																
Propulsion Plant																																
EMALS																																
Advanced Arresting Gear																																
Test & Evaluation Milestones																																
Integrated Test Phases																																
Developmental Test Reports																																
Operational Assessment Reports																																
Assessment of Operational Test Readiness																																
Operational Test Readiness Review																																
IOT&E Phase C2 (Warfare Systems)																																
IOT&E Phase C1 (HM&E Systems)																																
Contract Milestones																																
Construction Contract																																
Full Funding (SCN)																																

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2208</b>				
CVN 79 DAB PR	3	2013	3	2013
Propulsion Plant	1	2011	4	2017
EMALS SDD Complete	2	2015	2	2015
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	2	2012	2	2012
Integrated Tests IT-1	1	2011	2	2013
Integrated Tests IT-2	2	2013	3	2016
Integrated Tests IT-3	3	2016	1	2017
Integrated Tests IT-4	1	2017	4	2017
Operational Assessment Report 1 (OAR1 IT-1)	3	2012	3	2012
Operational Assessment Report 2 (OAR2 IT-1)	3	2013	3	2013
Developmental Test Report (DP RPT IT-1)	3	2013	3	2013
Operational Assessment Report 3 (OAR3 IT-1)	4	2014	4	2014
Developmental Test Report (DT RPT IT-2)	4	2016	4	2016
Operational Assessment Report (OAR IT-2)	4	2016	4	2016
Assessment of Operational Test Readiness - Phase C1 (AOTR-C1)	4	2016	4	2016
Operational Test Readiness Review - Phase C1 (OTRR-C1)	4	2016	4	2016
Developmental Test Report (DP RPT IT-3)	2	2017	2	2017
Assessment of Operational Test Readiness - Phase C1 (AOTR-C2)	3	2017	3	2017
Operational Test Readiness Review - Phase C1 (OTRR-C2)	3	2017	3	2017
Operational Test Phase 1 (OT-C1)	1	2017	4	2017

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 2208: <i>CVN 21</i>
---	---	---------------------------------------

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Operational Test Phase 2 (OT-C2)	3	2017	4	2017
CVN 79 Construction Contract Award	4	2013	4	2013
CVN 79 SCN Full Funding	1	2013	4	2017
CVN 78 Ship Delivery	4	2015	4	2015

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>				<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3216.: <i>Tactical Support Center-Integration</i>	8.507	2.110	9.600	-	9.600	4.593	4.654	4.728	4.817	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). Through the integration of off-board sensors with shipboard systems, including data processing and displays, the AN/SQQ-34 is utilized in detecting, classifying, and localizing threats. An integrated element of the Carrier Combat System, the AN/SQQ-34 supports the tactical deployment of embarked ASW and Surface Warfare (SUW) assets (SH-60F and MH-60R helicopters). This project provides the design, development and engineering foundation to refresh legacy AN/SQQ-34 systems on all Carriers and shore sites in support of Fleet introduction and shipboard integration of the MH-60R Multi-Mission Helicopter. Upgrades to legacy systems enable the exchange of sensor, tactical and imagery data with the MH-60R initially, followed by incremental upgrades to support CVN ASW improvements and air integration and efforts.

Additionally, this project will mature the development of low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems, and addresses the major cost drivers of planar arrays and their associated radios. This effort will be the first spiral of a major cost reduction effort for multi-beam arrays, with a goal of showing a path to a production cost of less than one third the cost of existing array technologies. This development will produce key integrated components needed to reduce the cost of arrays and will provide prototype multi-beam Ku-Band receiving and transmitting arrays/radios using these components. The effort will also emphasize advances in technologies associated with multi-path interference, scan angle losses and networking waveforms.

(Speed to Fleet) The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> MH-60R Integration Development for CV-TSC	8.507	2.110	7.605
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Completed AN/SQQ-34(V)2 MH-60R Integration Increment 1 (software version 6.0) system verification and validation and conducted Combat System Certification.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>
<p>Completed detailed design work on AN/SQQ-34(V)2 MH-60R Integration Increment 2, including multiple critical design reviews (CDRs). Efforts included hardware/software development for a modification to the existing Common Data Link (CDL) system to support MH-60R links within the Ku-Band.</p> <p>Developed acquisition documentation (source selection plan and statement of work) for the next generation Ku-Band system that will support simultaneous users including MH-60R, BAMS, P-3s and other potential users.</p> <p>Completed development of AN/SQQ-34(V)2 MH-60R Integration Increment 2 (software version 7.0). Completed software baseline and verification testing. Initiated software code effort on AN/SQQ-34(V)2 MH-60R Integration Increment 2 (software version 7.0).</p> <p><b>FY 2012 Plans:</b> Conduct Test Readiness Review (TRR) and Combat System Certification on AN/SQQ-34(V)2 MH-60R Integration Increment 2 baseline (software version 7.0).</p> <p>Complete requirements definition for next software build upgrade of the AN/SQQ-34(V)2 baseline (Software version 8.0). Commence high level design activities and conduct a System Requirements Review (SRR) and a System Functional Review (SFR). Content of build upgrades include integration with PEO-IWS product line architecture efforts and integration of Sonar Tactical Decision Aid (STDA) for support of ASW environmental and mission planning.</p> <p><b>FY 2013 Plans:</b> Continue development efforts AN/SQQ-34(V)2 (software version 8.0) with input from System Requirements Review (SRR) and System Function Review (SFR). Complete Critical Design Review (CDR) and begin generating software code and test plan.</p> <p>Begin development of low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems, and addresses the major cost drivers of planar arrays and their associated radios.</p>			
<p><b>Title:</b> Phased Array COMSEC</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> (Speed to Fleet) The CV-TSC program provides increased situational awareness to the Carrier Strike Group (CSG) in support of force protection, primarily in the area of Anti-Submarine Warfare (ASW). A portion of this program will focus on maturing low-cost multi-beam Ku-Band planar phased arrays and associated integrated radio systems that will be used to support data links to multiple MH-60Rs. This specific effort will address the need for low cost communications security (COMSEC) devices that are compatible with phased array systems, and that are needed to secure these data links.</p> <p><b>FY 2013 Plans:</b></p>		-	-
			1.995 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Develop low cost COMSEC suitable for use with phased array-based Ku-band data links to MH-60R.			
<b>Accomplishments/Planned Programs Subtotals</b>	8.507	2.110	9.600

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/2176: <i>Undersea Support Equipment (CV-TSC/CDL portion)</i>	17.372	15.740	8.348	0.000	8.348	0.350	0.358	0.398	0.407	Continuing	Continuing

**D. Acquisition Strategy**

The CV-TSC will be upgraded to support full deployments of Ku-Band equipped MH-60R aircraft. The CV-TSC development activity is a government field activity, Naval Undersea Warfare Center (NUWC), Division Keyport. Hardware procurements and back fit of the CV-TSC will use the AN/SQQ-34C as a baseline with additional hardware necessary for MH-60R support. Hardware shall be procured via a Request For Proposal (RFP) with industry. To the maximum extent possible, CV-TSC will use enterprise hardware initiatives being developed by the Navy in support of DDG-1000 and Aegis Modernization. (Speed to Fleet) In support of MH-60R, COMSEC development and certification will be conducted under the auspices of the Naval Center for High Assurance Computer Systems at the Naval Research Laboratory (NRL).

**E. Performance Metrics**

- Successfully complete Preliminary Design Review (PDR) and Critical Design Review (CDR) for MH-60R system upgrade.
- Successfully field system that supports integration of the MH-60R on the CVN.
- Utilize Commercial Off-The-Shelf (COTS) based Common Processor/Common Display Systems (CPS/CDS) to minimize Total Ownership Costs. (Speed to Fleet) Successfully complete Certification requirements for COMSEC being developed.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Engineering / H/W & S/W Devel / Integration	WR	NAWC/Pax River:MD	-	-		1.500	Dec 2012	-		1.500	0.000	1.500	
Engineering / H/W & S/W Devel / Integration	WR	NRL:DC	-	-		0.500	Dec 2012	-		0.500	0.000	0.500	
Engineering / H/W & S/W Devel / Integration	WR	NSWC/Dahlgren:VA	-	-		0.500	Dec 2012	-		0.500	0.000	0.500	
Engineering / H/W & S/W Devel / Integration	WR	NUWC/Keyport:WA	9.633	1.535	Dec 2011	4.449	Nov 2012	-		4.449	Continuing	Continuing	Continuing
System Eng / S/W Development	C/CPFF	Adaptive Methods:VA	0.300	-		-		-		-	0.000	0.300	
System Eng / S/W Development	C/CPFF	JHU/APL:MD	0.250	-		-		-		-	0.000	0.250	
System Eng / S/W Development	WR	SPAWAR:CA	3.610	-		-		-		-	0.000	3.610	
Engineering / H/W & S/W Development	C/CPFF	VAR*:VAR*	-	-		0.366	Dec 2012	-		0.366	0.000	0.366	
Advanced Design & Development	WR	NRL:DC	-	-		1.995	Oct 2012	-		1.995	0.000	1.995	
<b>Subtotal</b>			13.793	1.535		9.310		-		9.310			

**Remarks**  
Engineering/H/W & S/W Development/Integration

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test and Certification	WR	NUWC//Keyport:WA	0.500	0.500	Dec 2011	0.235	Nov 2012	-		0.235	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.500	0.500		0.235		-		0.235			

**Remarks**  
Testing and Certification



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>
---	---	---

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems:MD	0.095	0.075	Feb 2012	0.055	Dec 2012	-		0.055	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.095	0.075		0.055		-		0.055			

**Remarks**  
N/A

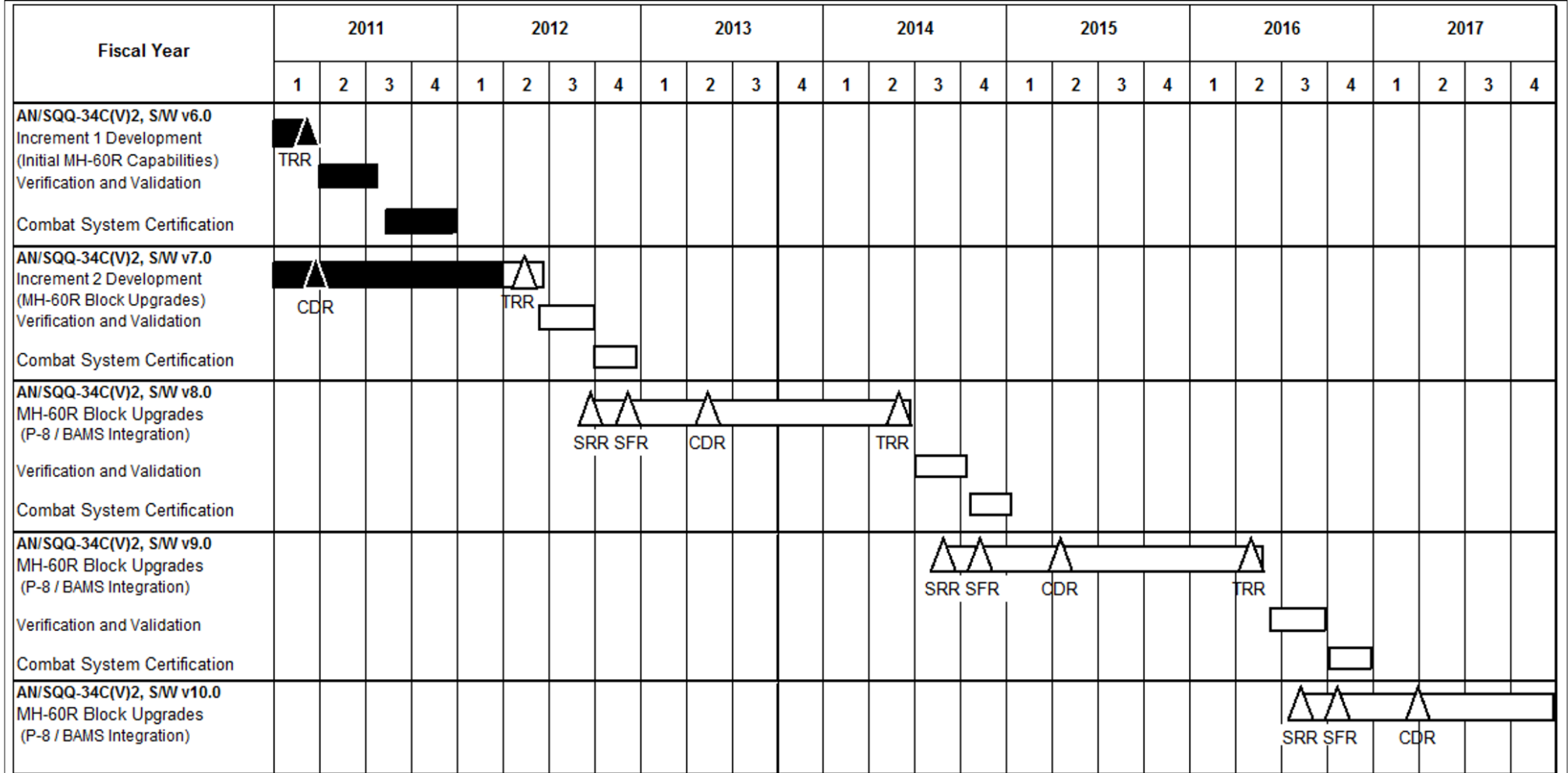
	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	14.388	2.110		9.600		-		9.600			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>
---	---	---



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>
---	---	---

Phased Array COMSEC	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Requirements</b>																												
Identify COMSEC Requirement									REQ																			
<b>Design &amp; Development</b>																												
Initial Design									DES																			
Detailed Design									DES																			
Hardware/Software									HW/SW																			
<b>Testing</b>																												
Functional Testing													TEST															
Certification Testing													CERT															
<b>Reviews</b>																												
Initial Design									IDR ▲																			
Final Design									FDR ▲																			

2013OSD - 0603512N - 3216.S14

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3216.L24</b>				
Increment 1 (S/W v6.0): Initial MH-60R Capabilities Development	1	2011	1	2011
<b>Phased Array COMSEC</b>				
Increment 1 (S/W v6.0): Test Readiness Review (TRR)	1	2011	1	2011
Increment 1 (S/W v6.0): MH-60R Verification and Validation	2	2011	3	2011
Requirements: Identify COMSEC Requirement: COMSEC Requirement	1	2013	1	2013
Increment 1 (S/W v6.0): MH-60R Combat System Certification	3	2011	4	2011
Increment 2 (S/W v7.0): MH-60R Block Upgrades Development	1	2011	2	2012
Increment 2 (S/W v7.0): Critical Design Review (CDR)	1	2011	2	2011
Increment 2 (S/W v7.0): Test Readiness Review (TRR)	2	2012	2	2012
Design & Development: Initial Design: Preliminary Design	1	2013	2	2013
Increment 2 (S/W v7.0): MH-60R Verification and Validation	2	2012	3	2012
Increment 2 (S/W v7.0): MH-60R Combat System Certification	4	2012	4	2012
Design & Development: Detailed Design: Final Design	2	2013	3	2013
Increment 3 (S/W v8.0): MH-60R Block Upgrades (P-8/BAMS Integration)	3	2012	2	2014
Design & Development: Hardware/Software: Hardware/Software Completion	3	2013	4	2013
Increment 3 (S/W v8.0): System Requirements Review (SRR)	3	2012	4	2012
Increment 3 (S/W v8.0): System Functional Review (SFR)	4	2012	4	2012
Increment 3 (S/W v8.0): Critical Design Review (CDR)	2	2013	2	2013
Increment 3 (S/W v8.0): Test Readiness Review (TRR)	2	2014	2	2014
Testing: Functional Testing: Hardware/Software Functional Testing	1	2014	1	2014
Increment 3 (S/W v8.0): Verification and Validation	3	2014	4	2014

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 3216.: <i>Tactical Support Center-Integration</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Testing: Certification Testing: Formal Certification Testing	2	2014	4	2014
Increment 3 (S/W v8.0): Combat System Certification	4	2014	1	2015
Increment 4 (S/W v9.0): MH-60R Block Upgrades (P-8/BAMS Integration)	3	2014	2	2016
Increment 4 (S/W v9.0): System Requirements Review (SRR)	3	2014	3	2014
Reviews: Initial Design: Initial Design Review	1	2013	1	2013
Increment 4 (S/W v9.0): System Functional Review (SFR)	4	2014	4	2014
Increment 4 (S/W v9.0): Critical Design Review (CDR)	1	2015	2	2015
Increment 4 (S/W v9.0): Test Readiness Review (TRR)	2	2016	2	2016
Reviews: Final Design: Final Design Review	2	2013	2	2013
Increment 4 (S/W v9.0): Verification and Validation	2	2016	3	2016
Increment 4 (S/W v9.0): Combat System Certification	4	2016	4	2016
Increment 4 (S/W v10.0): MH-60R Block Upgrades (P-8/BAMS Integration)	3	2016	4	2017
Increment 4 (S/W v10.0): System Requirements Review (SRR)	3	2016	3	2016
Increment 4 (S/W v10.0): System Functional Review (SFR)	4	2016	4	2016
Increment 4 (S/W v10.0): Critical Design Review (CDR)	1	2017	2	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4004: <i>EMALS</i>
---	---	--------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
4004: <i>EMALS</i>	59.135	22.418	60.861	-	60.861	23.568	2.440	2.507	2.568	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 of an advanced technology aircraft launch system in support of the CVN 78 design and construction schedule, as well as Engineering and Life Cycle System (ELCS) design. The Electromagnetic Aircraft Launch System (EMALS) will be the aircraft catapult for CVN 78 Class ships. EMALS provides better control of applied forces, both peak and transient dynamic, improved reliability and maintainability, increased operational availability, and reduced operator and maintainer workload.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> EMALS	59.135	22.418	60.861
<b>Articles:</b>	0	0	0
<b>Description:</b> EMALS			
<b>FY 2011 Accomplishments:</b> (1) EMALS SDD Phase - Continued shipboard representative system development effort. Continued testing and performed risk mitigation. Provided management, system engineering, test, and ship integration support.			
<b>FY 2012 Plans:</b> (1) EMALS SDD Phase - Continue shipboard representative system development, testing and risk mitigation efforts. Provide management, system engineering, test, and ship integration support.  (2) EMALS E&LCSD - Award the E&LCSD (BOA) Contract. Provide technical services, program management and logistics management in support of EMALS CVN 78 shipset efforts.			
<b>FY 2013 Plans:</b> Finalize full system testing and perform risk mitigation. Continue to develop Logistics products. Ensure EMALS supportability by providing logistics expertise to all IPTs. Implement the complete logistics program during the SDD phase. Continue developing the EMALS Maintenance Plan, Reliability Centered Maintenance (RCM), update and maintain Logistics Management Information, Logistic Support Analysis, calibration procedures, and EMALS training.			
<b>Accomplishments/Planned Programs Subtotals</b>	59.135	22.418	60.861

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4004: <i>EMALS</i>
---	---	--------------------------------------

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• BLI 200100: <i>Carrier Replacement Program</i>	2,615.756	554.798	608.195	0.000	608.195	666.129	2,999.085	1,662.208	2,867.641	13,154.058	36,797.384
• BLI 530000: <i>Prior Year Shipbuilding CVN78</i>	0.000	0.000	0.000	0.000	0.000	449.000	362.000	0.000	0.000	0.000	811.000

**D. Acquisition Strategy**

The CVN 78 will be the first ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class. The CVN 78 will feature a new nuclear propulsion and electrical generation/distribution system, new electromagnetic aircraft launching system, advanced arresting gear system, all electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war fighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability/flexibility, increased operational availability, and increased flexibility to support future upgrades.

**E. Performance Metrics**

Successfully complete Highly Accelerated Life Test (HALT) Phase II. Successfully complete System Functional Demonstration (SFD) testing. Successfully complete Environment Qualification Testing (EQT). Successfully complete Shipset Controls Lab testing.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4004: <i>EMALS</i>
---	---	--------------------------------------

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Aircraft Launch, Recovery & Support	C/CPAF	Northrop Grumman:VA	86.673	-		-		-		-	0.000	86.673	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (PDRR):CA	82.719	-		-		-		-	0.000	82.719	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (SDD):CA	390.728	20.718	Dec 2011	40.104	Dec 2012	-		40.104	25.865	477.415	408.301
Aircraft Launch, Recovery & Support	WR	NAWC Lakehurst:NJ	44.704	-		-		-		-	0.000	44.704	
Aircraft Launch, Recovery & Support	C/CPAF	HIINC:VA	3.126	-		-		-		-	0.000	3.126	
Aircraft Launch, Recovery & Support	C/CPAF	General Atomics (SDD) - Award Fee:CA	14.253	-		-		-		-	0.000	14.253	14.253
<b>Subtotal</b>			622.203	20.718		40.104		-		40.104	25.865	708.890	

**Remarks**  
Northrop Grumman spun off its shipbuilding sector and effective 14 April 2001 officially became Huntington Ingalls Incorporated (HIINC).

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Aircraft Launch, Recovery & Support	WR	NAWC Lakehurst:NJ	72.346	1.700	Dec 2011	20.757	Dec 2012	-		20.757	5.218	100.021	
<b>Subtotal</b>			72.346	1.700		20.757		-		20.757	5.218	100.021	

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
DAWF	Various	Not Specified:Not Specified	0.299	-		-		-		-	0.000	0.299	





**UNCLASSIFIED**

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy																						DATE: February 2012										
APPROPRIATION/BUDGET ACTIVITY										R-1 ITEM NOMENCLATURE										PROJECT												
1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)										PE 0603512N: Carrier Systems Development										4004: EMALS												
Fiscal Year	2011				2012				2013				2014				2015				2016				2017							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																																
Propulsion Plant																																
EMALS																																
Advanced Arresting Gear																																
Test & Evaluation Milestones																																
Integrated Test Phases																																
Developmental Test Reports																																
Operational Assessment Reports																																
Assessment of Operational Test Readiness																																
Operational Test Readiness Review																																
IOT&E Phase C2 (Warfare Systems)																																
IOT&E Phase C1 (HM&E Systems)																																
Contract Milestones																																
Construction Contract																																
Full Funding (SCN)																																

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4004: <i>EMALS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 4004</b>				
CVN 79 DAB PR	3	2013	3	2013
Propulsion Plant	1	2011	4	2017
EMALS SDD Complete	2	2015	2	2015
AAG Config Review	1	2011	1	2011
AAG TRR 2 (IT)	2	2012	2	2012
Integrated Tests IT-1	1	2011	2	2013
Integrated Tests IT-2	2	2013	3	2016
Integrated Tests IT-3	3	2016	1	2017
Integrated Tests IT-4	1	2017	4	2017
Operational Assessment Report 1 (OAR1 IT-1)	3	2012	3	2012
Operational Assessment Report 2 (OAR2 IT-1)	3	2013	3	2013
Development Test Report (DT RPT IT-1)	3	2013	3	2013
Operational Assessment Report 3 (OAR3 IT-1)	4	2014	4	2014
Development Test Report (DT RPT IT-2)	4	2016	4	2016
Operational Assessment Report 1 (OAR IT-2)	4	2016	4	2016
Assessment of Operational Test Readiness - Phase C1 (AOTR-C1)	4	2016	4	2016
Operational Test Readiness Review - Phase C1 (OTRR-C1)	4	2016	4	2016
Development Test Report (DT RPT IT-3)	2	2017	2	2017
Assessment of Operational Test Readiness - Phase C1 (AOTR-C2)	3	2017	3	2017
Operational Test Readiness Review - Phase C1 (OTRR-C2)	3	2017	3	2017
Operational Test Phase 1 (OT-C1)	1	2017	4	2017

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4004: <i>EMALS</i>
---	---	--------------------------------------

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Operational Test Phase 2 (OT-C2)	3	2017	4	2017
CVN 79 Construction Contract Award	4	2013	4	2013
CVN 79 SCN Full Funding	1	2013	4	2017
CVN 78 Ship Delivery	4	2015	4	2015

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy								<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>				<b>PROJECT</b> 4005: <i>In-Service Carrier Systems Development</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
4005: <i>In-Service Carrier Systems Development</i>	1.618	1.727	1.737	-	1.737	1.766	1.788	1.819	1.853	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Note - Project title was previously called "Smart Carrier"

**A. Mission Description and Budget Item Justification**

The In-Service Carrier Systems Demonstration and Validation program exploits available technologies to deliver an affordable, robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment. The program provides the system architecture, requirements/specification development, technology selection, software development (including software baseline), as well as land-based and shipboard testing of new technologies to improve shipboard operations and to reduce workload, manpower requirements, and Total Ownership Costs. Initial technologies include the Ship Control System Governor Software Development, Tank Preservation, UPS Replacements, Advanced Damage Control System (ADCS), Weapons Elevator Control Accumulator Replacement, and the Integrated Condition Assessment System. Demonstration technologies include Advanced Damage Control System (ADCS) software improvements, A/C Plant Model, IOC Replacement, Fleet Wireless PDA, Weapons Elevator Laser Positioning System, Legacy Steering Interface upgrades, CVN ITD location option evaluation tools, Antenna to Antenna coupling analysis tools. Wireless systems, smart sensors, lighting systems, knowledge-based systems, automated casualty control, automated technology for workload reduction, linked smart devices, common software tools for interoperability, and self-healing network are technologies being considered for future applications including the following: Integrated Bridge control Data Logger, C4I Network Performance Modeling and Analysis, NCDS Packet Filtering Device, Network Data Logger Device, PCS proof of concept, SCS Onboard trainer, Universal PCCU.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> In-Service Carrier Systems Development	1.618	1.727	1.737
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Completed Ship Control System Governor Software Development, AC Plant Model Capacity Optimization, Fleet Wireless PDA (Blackberry), and Weapons Elevator Laser Positioning System (CVN 76).			
<b>FY 2012 Plans:</b> Fiscal Year 2012 plans include support to technologies. Modifications, upgrades and development of systems and software will be ongoing in support of In-Service aircraft carrier modernization initiatives.			
<b>FY 2013 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4005: <i>In-Service Carrier Systems Development</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Fiscal Year 2013 plans include support to Aircraft Carrier technologies. Modifications, upgrades and development of systems and software will be ongoing in support of In-Service aircraft carrier modernization initiatives.			
<b>Accomplishments/Planned Programs Subtotals</b>	1.618	1.727	1.737

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

N/A

**D. Acquisition Strategy**

Investigate, demonstrate, and implement available technologies to deliver a robust, operator-friendly automation control environment for Navy Aircraft Carrier shipboard equipment to reduce workload, manpower requirements, and Total Ownership Costs (TOC).

**E. Performance Metrics**

Successfully complete Ship Control System Governor Software Development, AC Plant Model Capacity Optimization, UPS Replacements, ADCS Software Improvements (AFSSS/FCCS) Software Development Test, IOC replacement demonstration, Tank Preservation models, Weapons Elevator Laser Positioning demonstration, Legacy Steering Interface Upgrades, CVN ITD location option evaluation tool development, Antenna to Antenna coupling analysis tool development, Universal PCCU development, Ship Control System Trainer, Integrated Bridge Control Data Logger, Weapons Elevator Control Accumulator Replacement, and C4I Network Performance Requirements Modeling and Analysis.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4005: <i>In-Service Carrier Systems Development</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Ship Integration	WR	NAVSEA:Phil	1.112	0.115	Nov 2011	0.187	Nov 2012	-		0.187	0.000	1.414	
Ship Integration	WR	NAVSEA:Dahlgren	0.060	0.090	Nov 2011	0.031	Nov 2012	-		0.031	0.000	0.181	
<b>Subtotal</b>			1.172	0.205		0.218		-		0.218	0.000	1.595	

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Software Development	WR	NAVSEA:Phil	6.616	0.270	Nov 2011	0.341	Nov 2012	-		0.341	0.000	7.227	
Program Management Support	WR	NAVSEA:Phil	2.218	0.188	Nov 2011	0.221	Nov 2012	-		0.221	0.000	2.627	
Training Development	WR	NAVSEA:Phil	0.652	0.093	Nov 2011	0.166	Nov 2012	-		0.166	0.000	0.911	
Integrated Logistics Support	WR	NAVSEA:Phil	1.160	0.068	Nov 2011	0.102	Nov 2012	-		0.102	0.000	1.330	
Software Development	WR	NAVSEA:Dahlgren	0.115	0.140	Nov 2011	0.068	Nov 2012	-		0.068	0.000	0.323	
Program Management Support	WR	NAVSEA:Dahlgren	0.150	0.120	Nov 2011	0.047	Nov 2012	-		0.047	0.000	0.317	
<b>Subtotal</b>			10.911	0.879		0.945		-		0.945	0.000	12.735	

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	SPAWAR:Atlantic	-	0.225	Dec 2011	0.200	Nov 2012	-		0.200	0.000	0.425	
Developmental Test & Evaluation	WR	NAVSEA:Phil	3.692	0.268	Nov 2011	0.343	Nov 2012	-		0.343	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NAVSEA:Dahlgren	0.050	0.150	Nov 2011	0.031	Nov 2012	-		0.031	0.000	0.231	
<b>Subtotal</b>			3.742	0.643		0.574		-		0.574			





**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4005: <i>In-Service Carrier Systems Development</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Proj 4005</b>																												
Ship Control System Governor Software Development: Ship Control System Governor Software Development	██████████																											
AC Plant Model - Capacity Optimization: AC Plant Model - Capacity Optimization	██████████																											
IOC Replacement: IOC Replacement	██																											
Tank Preservation: Tank Preservation	████████████████████████████████████																											
Fleet Wireless PDA (Blackberry): Fleet Wireless PDA (Blackberry)	██████████																											
Weapons Elevator Laser Positioning System (CVN76): Weapons Elevator Laser Positioning System (CVN76)	██████████																											
UPS Replacements: UPS Replacements	████████████████████████████████																											
ADCS Software Improvements (AFSSS&FCCS): ADCS Software Improvements (AFSSS&FCCS)	██████████																											
Legacy Steering Interface Upgrade: Legacy Steering Interface Upgrade	██																											
CVN Integrated Topside Design location option evaluation tool: CVN Integrated Topside Design location option evaluation tool	██																											
Antenna to Antenna coupling analysis tool: Antenna to Antenna coupling analysis tool	██																											
Integrated Bridge Control Data Logger: Integrated Bridge Control Data Logger	██																											

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4005: <i>In-Service Carrier Systems Development</i>
---	---	---

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Weapons Elevator control accumulator replacement: Weapons Elevator control accumulator replacement																												
C4I Networks performance requirements modeling and analysis: C4I Networks performance requirements modeling and analysis																												
NCDS Packet Filtering Device: NCDS Packet Filtering Device																												
Network Data Logger Device: Network Data Logger Device																												
PCS proof of concept: PCS proof of concept																												
Universal PCCU: Universal PCCU																												
SCS Onboard trainer: SCS Onboard trainer																												
Integrated Condition Assessment System SE Improvements: Integrated Condition Assessment System SE Improvements																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4005: <i>In-Service Carrier Systems Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 4005</b>				
Ship Control System Governor Software Development: Ship Control System Governor Software Development	1	2011	4	2011
AC Plant Model - Capacity Optimization: AC Plant Model - Capacity Optimization	1	2011	4	2011
IOC Replacement: IOC Replacement	1	2011	4	2013
Tank Preservation: Tank Preservation	1	2011	4	2012
Fleet Wireless PDA (Blackberry): Fleet Wireless PDA (Blackberry)	1	2011	4	2011
Weapons Elevator Laser Positioning System (CVN76): Weapons Elevator Laser Positioning System (CVN76)	1	2011	4	2011
UPS Replacements: UPS Replacements	1	2011	1	2012
ADCS Software Improvements (AFSSS&FCCS): ADCS Software Improvements (AFSSS&FCCS)	1	2011	3	2011
Legacy Steering Interface Upgrade: Legacy Steering Interface Upgrade	2	2011	2	2015
CVN Integrated Topside Design location option evaluation tool: CVN Integrated Topside Design location option evaluation tool	2	2011	2	2013
Antenna to Antenna coupling analysis tool: Antenna to Antenna coupling analysis tool	2	2011	2	2013
Integrated Bridge Control Data Logger: Integrated Bridge Control Data Logger	2	2012	3	2014
Weapons Elevator control accumulator replacement: Weapons Elevator control accumulator replacement	1	2012	4	2012
C4I Networks performance requirements modeling and analysis: C4I Networks performance requirements modeling and analysis	1	2012	4	2013
NCDS Packet Filtering Device: NCDS Packet Filtering Device	2	2013	3	2015
Network Data Logger Device: Network Data Logger Device	2	2013	3	2015
PCS proof of concept: PCS proof of concept	2	2013	4	2015

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603512N: <i>Carrier Systems Development</i>	<b>PROJECT</b> 4005: <i>In-Service Carrier Systems Development</i>

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Universal PCCU: Universal PCCU	1	2012	4	2014
SCS Onboard trainer: SCS Onboard trainer	1	2012	4	2014
Integrated Condition Assessment System SE Improvements: Integrated Condition Assessment System SE Improvements	3	2014	2	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603513N: <i>Shipboard Sys Component Dev</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	0.051	-	-	-	-	-	-	-	-	0.000	0.051
2469: <i>Open System Architecture (OSA)</i>	0.051	-	-	-	-	-	-	-	-	0.000	0.051

**A. Mission Description and Budget Item Justification**

Funded the development of shipboard system components and technologies for the future surface combatant family of ships and focused on the following efforts: (1) development of specific and future surface combatant survivability and damage control/firefighting systems and features that reduce vulnerability against weapons, (2) implement modular standard open systems architecture at the total ship/system level and support reduced manning efforts through automation, (3) develop technologies to achieve a total integrated topside design focused on future surface ships, and (4) support the Integrated Power System effort that provides total ship electric power, including electric propulsion, power conversion and distribution, combat system and mission load interfaces to the electric power system.

All tasking will be completed for this project during FY 2011.

<b><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>FY 2013 Base</u></b>	<b><u>FY 2013 OCO</u></b>	<b><u>FY 2013 Total</u></b>
Previous President's Budget	0.051	-	-	-	-
Current President's Budget	0.051	-	-	-	-
Total Adjustments	-	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603513N: <i>Shipboard Sys Component Dev</i>	<b>PROJECT</b> 2469: <i>Open System Architecture (OSA)</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2469: <i>Open System Architecture (OSA)</i>	0.051	-	-	-	-	-	-	-	-	0.000	0.051
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Architectures, Interfaces & Modular Systems (AIMS) support implementation of Modular Standard Open Systems architecture (MOSA) at the total system/ship level. These modular interfaces facilitate mission and market adaptability, technology refresh and insertion, and competition. This funding supports the market surveillance and technology and other projections, cost and logistics analyses, process development, industry partnering, demonstrations and assessments necessary to translate into total ship acquisition.

All tasking will be completed for this project during FY 2011.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Total Open Shipboard Applications and Concepts	0.051	-	-
<b>Articles:</b>	0		
<b>Description:</b> Implementation: Transition with industry common Architectures, Interfaces, and Modular Systems (AIMS) for shipboard zones.			
<b>FY 2011 Accomplishments:</b> Complete all efforts associated with Total Ship interface standards development and implementation.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.051	-	-

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

N/A

**D. Acquisition Strategy**

Not Applicable

**E. Performance Metrics**

Quarterly Program Reviews

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603525N: <i>(U)PILOT FISH</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	79.699	95.605	101.169	-	101.169	76.829	56.271	46.247	46.715	Continuing	Continuing
0428: <i>Pilot Fish</i>	79.699	95.605	101.169	-	101.169	76.829	56.271	46.247	46.715	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	81.784	96.012	102.361	-	102.361
Current President's Budget	79.699	95.605	101.169	-	101.169
Total Adjustments	-2.085	-0.407	-1.192	-	-1.192
• Congressional General Reductions	-	-0.407			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.208	-			
• Program Adjustments	-	-	-1.184	-	-1.184
• Rate/Misc Adjustments	-	-	-0.008	-	-0.008
• Congressional General Reductions Adjustments	-0.877	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603525N: <i>(U)PILOT FISH</i>	<b>PROJECT</b> 0428: <i>Pilot Fish</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0428: <i>Pilot Fish</i>	79.699	95.605	101.169	-	101.169	76.829	56.271	46.247	46.715	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Pilot Fish	79.699	95.605	101.169
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	79.699	95.605	101.169

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>								
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0603527N: (U)RETRACT LARCH								
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	159.117	73.421	74.312	-	74.312	24.316	24.368	24.477	24.893	Continuing	Continuing
2690: <i>Retract Larch</i>	159.117	73.421	74.312	-	74.312	24.316	24.368	24.477	24.893	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	142.858	73.421	72.393	-	72.393
Current President's Budget	159.117	73.421	74.312	-	74.312
Total Adjustments	16.259	-	1.919	-	1.919
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	19.000	-			
• SBIR/STTR Transfer	-2.014	-			
• Program Adjustments	-	-	1.919	-	1.919
• Rate/Misc Adjustments	-	-	-	-	-
• Congressional General Reductions Adjustments	-0.727	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603527N: (U)RETRACT LARCH	<b>PROJECT</b> 2690: <i>Retract Larch</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2690: <i>Retract Larch</i>	159.117	73.421	74.312	-	74.312	24.316	24.368	24.477	24.893	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Retract Larch	159.117	73.421	74.312
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	159.117	73.421	74.312

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603536N: (U)RETRACT JUNIPER
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	127.544	130.153	90.730	-	90.730	98.240	90.562	78.057	76.161	Continuing	Continuing
4016: <i>Retract Sycamore</i>	127.544	130.153	90.730	-	90.730	98.240	90.562	78.057	76.161	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	134.497	130.267	109.122	-	109.122
Current President's Budget	127.544	130.153	90.730	-	90.730
Total Adjustments	-6.953	-0.114	-18.392	-	-18.392
• Congressional General Reductions	-	-0.114			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-4.400	-			
• SBIR/STTR Transfer	-1.812	-			
• Program Adjustments	-	-	-18.430	-	-18.430
• Rate/Misc Adjustments	-	-	0.038	-	0.038
• Congressional General Reductions Adjustments	-0.741	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
 Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603536N: (U)RETRACT JUNIPER	<b>PROJECT</b> 4016: <i>Retract Sycamore</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
4016: <i>Retract Sycamore</i>	127.544	130.153	90.730	-	90.730	98.240	90.562	78.057	76.161	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Retract Sycamore	127.544	130.153	90.730
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	127.544	130.153	90.730

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	1.292	1.338	0.777	-	0.777	0.799	0.832	0.857	0.874	Continuing	Continuing
1830: <i>RADIAC Development</i>	1.292	1.338	0.777	-	0.777	0.799	0.832	0.857	0.874	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Mission Description: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure ionizing radiation. These instruments are used on all Navy, Coast Guard and Military Sealift Command vessels, and at every Navy shore installation, in order to ensure the safety of personnel, continuity of operations in radiological contingencies, and protection of the environment.

Justification: Title 10 of the Code of Federal Regulations, Part 20 (10CFR20) requires RADIAC instruments be used to ensure the safety of personnel who work with or are exposed to radioactive materials in their work. Additionally, the Navy's mission requires personnel and ships to have the ability to operate in radiological environments and the ability to identify and interdict radiological Weapons of Mass Destruction (WMD). Navy programs that require RADIAC instruments for Occupational Safety & Health (OSH) reasons under the provisions of 10CFR20 include Naval Nuclear Propulsion, Nuclear Weapons, Medical, and Radiological Affairs Support. Non-OSH programs include Radiological Defense, Consequence Management, Training, Technical (RADIAC calibration, shielding evaluation, research, etc.) and Radiological Search (maritime interdiction and radiological search missions to locate or intercept Weapons WMD).

This budget item develops new, highly reliable, more easily calibrated, easy to care and maintain, light weight and modern RADIAC instruments in order to improve the effectiveness of radiation safety, to make instruments simpler to use, and to reduce life cycle costs. The ultimate goal is to replace old, bulky, costly to maintain and repair, unreliable and obsolete instrumentation with multifunction equipment that can be automatically calibrated at greatly reduced cost.

This budget item also provides for improvement to nuclear weapons intrinsic radiation (gamma and neutron) shielding calculations, mixed field (neutron and gamma) dosimetry, and in neutron measurement. The objective is to develop less costly and more effective integral shielding for better personnel protection and safety. Improvement in personnel dosimetry and neutron measurement is also a major emphasis.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603542N: <i>Radiological Control</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	1.358	1.338	0.823	-	0.823
Current President's Budget	1.292	1.338	0.777	-	0.777
Total Adjustments	-0.066	-	-0.046	-	-0.046
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.059	-			
• Program Adjustments	-	-	-0.040	-	-0.040
• Rate/Misc Adjustments	-	-	-0.006	-	-0.006
• Congressional General Reductions Adjustments	-0.007	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>
---	--	---

COST (\$ in Millions)	FY 2011		FY 2012		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		Cost To Complete	Total Cost
	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost					
1830: <i>RADIAC Development</i>	1.292	1.338	0.777	-	0.777	0.799	0.832	0.857	0.874	Continuing	Continuing					
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0							

**A. Mission Description and Budget Item Justification**

Mission: The Radiation Detection, Indication and Computation (RADIAC) Program is responsible for providing radiation monitoring instruments that detect and measure radiation in accordance with the provisions of Title 10 of the Code of Federal Regulations (10CFR). These instruments are used on all vessels afloat and at every shore installation in order to ensure the safety of personnel and the environment. RADIACs are also required after an act of terrorism or war that involves nuclear material in order to enable continuing warfighting ability.

Justification: Many RADIAC instruments and dosimetry systems are decades old and approaching the end of their useful lives. In some cases the equipment and replacement parts are no longer manufactured, making the equipment logistically unsupportable. In other cases increasing failure rates due to age make replacements an economic efficiency improvement. In all cases a technology refresh will make both economic sense and provide increased operational capabilities.

Naval Nuclear Propulsion Program (NNPP): Instruments are developed to support the safe operation and maintenance of nuclear powered vessels and at nuclear maintenance facilities.

Non-NNPP: Instruments are developed to support other than NNPP end users, such as Explosive Ordnance Disposal, Weapons, Medical, Industrial Radiography and Training.

Visit, Board, Search & Seizure (VBSS): The Navy has been tasked to intercept and board vessels at sea to search for nuclear or radiological materials that could be used for terrorist attacks. These instruments would have different characteristics than those used for NNPP and non-NNPP purposes and prototypes must be developed and/or tested and evaluated.

The AN/PDR-65 Ship Board Monitoring System is obsolete and will be replaced. The IM-239/WDQ Air Particle Detector (APD) and the HD-732, HD-1150 and HD-1151 Air Particle Samplers (APS) are obsolete and will be replaced.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Next Generation Air Particle Detector	0.689	0.544	-
<b>Articles:</b>	4	0	
<b>Description:</b> The IM-239/WDQ Air Particle Detector (APD) is a 400-pound piece of installed equipment on nuclear powered ships and submarines that monitors emissions into the air from the ships' nuclear power plants. The current version is approximately 30 years old and despite component upgrades, has reached the end of its useful life due to parts and technological obsolescence. Naval Reactors requires a new version for the nuclear fleet. To develop the new IM-272/WDQ the RADIAC Program is working with the pre-eminent facility in the U.S. for sampling air for radioactivity, the DoE Remote Sensing Laboratory at Nellis AFB, NV.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b><i>FY 2011 Accomplishments:</i></b> Based on T&amp;E results, issued final specifications to vendors to build prototypes and provided cost estimates for full production.</p> <p><b><i>FY 2012 Plans:</i></b> Select the winning prototype and prepare final specifications prior to production.</p>				
<p><b><i>Title:</i></b> Radiological Affairs Support Program Survey Meter</p> <p><b><i>Description:</i></b> The Radiological Affairs Support Program (RASP) survey meter is obsolete and must be replaced.</p> <p><b><i>FY 2011 Accomplishments:</i></b> Purchased vendor prototypes.</p> <p><b><i>FY 2012 Plans:</i></b> Test and evaluate RASP survey meter. Issue final report and recommendation.</p>		<p><b><i>Articles:</i></b></p> <p>0.165 22</p>	<p>0.079 0</p>	-
<p><b><i>Title:</i></b> Electronic Personal Dosimeter Telemetry</p> <p><b><i>Description:</i></b> Naval Reactors has requested the study of adding capabilities to the Electronic Personal Dosimeter (EPD). Besides its basic functionality for recording dose exposure, this instrument also has the ability to remotely monitor and report the radiation exposure of on-scene emergency responders. This feature has not been implemented in the Navy EPDs that were recently procured and fielded, but the USAF already makes extensive use of the same EPD, along with the extra hardware and software required for the purpose of keeping track of responders in emergencies in terms both of their accumulated exposure and precise location while working inside the boundaries of a radiological scene.</p> <p>A second application of the EPD telemetry capability is for radiological work. This would include workers wearing EPDs during high radiation level work, and EPDs being posted at locations where radiation level measurements are required in high radiation background areas. Posting of EPDs in such a situation would preclude having a technician enter the danger area with a survey meter to measure the radiation level. An example would be monitoring the radiation level of the pipe through which primary plant resin is being discharged from the ship.</p> <p>Exploitation of the full potential of this COTS item will maximize the Navy's return on this hardware investment.</p> <p><b><i>FY 2011 Accomplishments:</i></b></p>		<p><b><i>Articles:</i></b></p> <p>0.054 0</p>	<p>0.066 0</p>	-



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Tested and evaluated different telemetry configurations.				
<b>FY 2012 Plans:</b> Issue final report and recommendations.				
<b>Title:</b> Optically Stimulated Luminescence		0.077	0.072	0.069
		0	0	0
<b>Articles:</b>				
<b>Description:</b> The need for dosimetry is a very significant consequence of working with or around ionizing radiation. The expensive infrastructure and investments by the Navy in its dosimetry program is evidence of the importance attributed by the Navy to the health and safety of the Navy's military and civilian personnel, and that of the general public. As new and improved technologies appear, it is important to evaluate them for their potential to improve performance while reducing total operating costs. Optically Stimulated Luminescence (OSL) is a relatively new technology where the benefits appear to be significant but have yet to be fully evaluated. This project's objective is to make modest investments with the labor of a Navy Health Physicist to explore, in collaboration with a U.S. Army colleague interested in the same technology for Army use, the potential of the joint military application for OSL dosimetry.				
<b>FY 2011 Accomplishments:</b> Coordinated with Defense Threat Reduction Agency (DTRA) and other services to establish common requirements.				
<b>FY 2012 Plans:</b> Research dosimetric properties of OSL material for suitability as a Navy dosimeter.				
<b>FY 2013 Plans:</b> Research dosimetric properties of OSL material for suitability as a Navy dosimeter.				
<b>Title:</b> Radiological Shipboard Defense Monitor		0.098	0.052	0.067
		0	0	0
<b>Articles:</b>				
<b>Description:</b> All surface combatants require an instrument to detect and measure radiological activity in the event of a nuclear detonation in order for the ship to avoid the radiological danger and continue its mission. The AN/PDR-65, at over 40 years of age, was the instrument used for this purpose, but it is obsolete and has been de-fielded. An interim replacement has been fielded while OPNAV finalizes updating the Cold War requirements under which the AN/PDR-65 was designed in order to include radiological (terrorist dirty bomb) threats. The interim replacement is the IM-265 Survey Meter, which is already in the Navy inventory, but it was not designed for this requirement and cannot measure radiation external to the ship and is therefore not suitable as the permanent replacement. In light of Operation Tomodachi this requirement has taken on more significance.				
<b>FY 2011 Accomplishments:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Updated Fleet requirements and specifications from Cold War scenario to current threats. <b>FY 2012 Plans:</b> Begin study and analysis of replacement equipment and possibility of integration of a shipboard radiological warning system with a chemical and biological warning system called JWARNS. <b>FY 2013 Plans:</b> Finalize specification development for follow-on procurement.				
<b>Title:</b> Visit, Board, Search & Seizure  <b>Description:</b> The Visit, Board, Search & Seizure (VBSS) mission of the Navy includes the requirement to be able to board ships and be able to detect and identify potential radiological or nuclear Weapons of Mass Destruction (WMD). Such a sensitive mission requires leading edge technology and capabilities to ensure success. The AN/PDX-1 RADIAC Set was fielded in response to a Joint Urgent Operational Needs Statement to meet this requirement. It contains several instruments that serve different purposes, including the search detector, isotope identifier, and personal dosimeter. Current technology dictates that the sensitivity of the detector is directly proportional to the size of the detector element; i.e., the larger the detector, the more sensitive and capable it is. However, in VBSS there must be a tradeoff between size/weight and capability, since it is difficult and hazardous for boarding parties to carry a backpack-sized detector, along with their weapons and other gear, up a rope ladder to board a vessel on the high seas. This will be a continuing and growing effort to find smaller, lighter instruments with enhanced sensitivity, reach-back capability, and other enhancements to provide the Navy the best and most cost effective equipment possible for this critical mission.  <b>FY 2011 Accomplishments:</b> Procured Isotope Identifier articles for evaluation. <b>FY 2012 Plans:</b> Procure Radiological Search and Dosimetry articles for evaluation. <b>FY 2013 Plans:</b> Procure Isotope Identifier articles for evaluation, issue report on testing to date.		<b>Articles:</b> 0.163 4	0.108 8	0.112 4
<b>Title:</b> Naval Nuclear Propulsion Program Survey Meter  <b>Description:</b> A survey meter for the Naval Nuclear Propulsion Program (NNPP) must meet military specifications for shipboard use, to include high tolerances for exposure to characteristics such as shock, temperature, humidity and sea water. COTS survey meters, which in most cases might be adequate in the mentioned environmental regards for shore-based requirements,		<b>Articles:</b> 0.031 3	0.023 0	0.035 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
cannot meet military requirements. COTS equipment is evaluated for compliance with technical specifications, and for potential hardening for shipboard use.				
<b>FY 2011 Accomplishments:</b> Procured vendor prototypes for T&E.				
<b>FY 2012 Plans:</b> Test and evaluate commercial prototypes for suitability for Navy use.				
<b>FY 2013 Plans:</b> Test and evaluate commercial prototypes for suitability for Navy use, begin surveying manufacturers regarding options.				
<b>Title:</b> Naval Academy Midshipman Summer Internship		0.015	0.015	0.015
		0	0	0
<b>Articles:</b>				
<b>Description:</b> Every summer a Midshipman is selected to conduct laboratory studies in support of the Naval Dosimetry System to research various responses and issues with thermoluminescent dosimetry. Funds pay for materials.				
<b>FY 2011 Accomplishments:</b> Accomplished study assigned by Naval Academy instructor.				
<b>FY 2012 Plans:</b> Accomplish study assigned by Naval Academy instructor. Present paper to American Health Physics Society on FY11 findings.				
<b>FY 2013 Plans:</b> Accomplish study assigned by Naval Academy instructor.				
<b>Title:</b> Neutron Electronic Personal Dosimeter		-	0.038	-
			0	
<b>Articles:</b>				
<b>Description:</b> A neutron EPD will show real-time neutron accumulated doses in accelerator facilities producing high neutron yields. Currently, the DT-702 dosimeter is worn, but it must be processed at an off-site facility to obtain a dose report, which are not available for several weeks after exposure. With increased demand of accelerator facility use, the lag time between dose receipt and dose report poses increased risk to personnel safety.				
<b>FY 2012 Plans:</b> Evaluate COTS examples for neutron detection characteristics and suitability for use alongside the Navy's new Neutron Area Monitor.				
<b>Title:</b> Calibrators		-	0.054	0.165

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p align="right"><b>Articles:</b></p> <p><b>Description:</b> Calibrators are the basic tool used to calibrate all Navy radiological detection equipment. Essentially they consist of a high energy radiological source (Cs-137) in a shielded container that is located in a specially constructed room, or "range." A technician places the instrument to be calibrated at a specific calibration point in the range and remotely operates the calibrator by raising the source out of its container so that it irradiates the object instrument. The instrument's response to the radiation is measured so that it can be calibrated to specific tolerances. The current suite of AN/UDM-1B calibrators is over 20 years old and the natural decay of the strength of the radioactive source over time restricts calibration effectiveness by limiting the scale of calibration points below American National Standards Institute (ANSI) requirements that are followed in accordance with Navy policy. Also due to the age of the calibrators, there are several parts no longer supported by the manufacturer, and a malfunctioning calibrator poses a very high safety risk. COTS equipment will be surveyed to find the best solution with which to equip the Navy's seven RADIAC Calibration Laboratories with modern calibrators.</p> <p><b>FY 2012 Plans:</b> Study state of the art COTS calibrators for suitability.</p> <p><b>FY 2013 Plans:</b> Study state of the art COTS calibrators for suitability, issue report with findings and recommendation for replacement of existing equipment.</p>	-	0	0
<p align="right"><b>Articles:</b></p> <p><b>Title:</b> Neutron Area Monitor</p> <p><b>Description:</b> Several facilities throughout the Navy, particularly accelerator facilities, produce significant neutron radiation fields. Having a monitor to provide instant readings on the neutron level provides data on high dose procedures and experiments. The current system requires environmental dosimeters to be used and sent out for processing, taking weeks to obtain results. Waiting on dosimeter results may cause excessive exposures to individuals because safe radiological boundaries may not be maintained where the radiation level is not known.</p> <p><b>FY 2012 Plans:</b> Survey affected facilities to determine specific neutron monitoring requirements. Develop specification and obtain concurrence from technical sponsors.</p> <p><b>FY 2013 Plans:</b> Issue report with findings and recommendations, and determination of a need for First Articles.</p>			
<p align="right"><b>Articles:</b></p> <p><b>Title:</b> Casualty Dosimeter</p>	-	0.075	0.073

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Description:</b> A Casualty Dosimeter is issued to every individual under certain operational conditions. The dosimeter is used for triage of casualties from a radiological event. The current IM-270's useful life will expire in 2016 so a replacement must be found.</p> <p><b>FY 2012 Plans:</b> Study alternatives, to include leveraging Army and Marine systems for Navy use. Collaborate with BUMED to develop specification.</p> <p><b>FY 2013 Plans:</b> Issue report on test results, finalize specification for follow-on procurement.</p>				
<p><b>Title:</b> Air Particle Sampler</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Portable Air Particle Samplers (APS) are used to sample for airborne radioactivity on board nuclear powered ships and in nuclear ship maintenance facilities in confined work areas where the installed Air Particle Detectors (IM-239/WDQ) are ineffective. The current HD-732 (AC powered) and HD-1151 (DC powered) are obsolete and will shortly be unsupported. COTS equipment will be evaluated to replace the two current models, to include the feasibility of finding an AC/DC unit that would simplify logistical support by combining the two units into one.</p> <p><b>FY 2012 Plans:</b> Procure COTS models for evaluation to determine if they meet Navy requirements.</p> <p><b>FY 2013 Plans:</b> Issue report on prototype evaluation; finalize specification for follow-on procurement.</p>		-	0.183 3	0.048 0
<p><b>Title:</b> Telescoping Rate Meter</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Telescoping rate meters play a vital role in the practice of radiation safety in the Naval Nuclear Propulsion Program. The detector is attached to the end of an extendable, telescoping pole, thus allowing the operator to maintain a safe distance for high exposure areas. This allows the Navy to comply with federal regulations that radioactive doses received by operators are As Low As Reasonably Achievable (ALARA).</p> <p><b>FY 2013 Plans:</b> Develop specification by collaborating with technical sponsor and collecting end user input.</p>		-	-	0.046 0
<p><b>Title:</b> Neutron Detector</p> <p align="right"><b>Articles:</b></p>		-	-	0.098 3

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603542N: <i>Radiological Control</i>	<b>PROJECT</b> 1830: <i>RADIAC Development</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p><b>Description:</b> Several commands use non-destructive interrogation techniques when searching cargo containers. These techniques expose the container to a 14 MeV neutron generator and analyze the reflected data. These end users require a portable neutron detector capable of accurately measuring the neutrons produced by the interrogation in order to monitor the work area to ensure dose limits are not exceeded.</p> <p>This work may also prove to be a suitable technology that would also enable replacement of the aging AN/PDR-70 Neutron Survey Meter.</p> <p><b>FY 2013 Plans:</b> Procure, test and evaluate vendor prototypes.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	1.292	1.338	0.777

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN 2920: <i>RADIAC</i>	4.869	6.201	8.083	0.000	8.083	8.087	8.420	8.188	8.328	Continuing	Continuing

**D. Acquisition Strategy**  
Development efforts are focused on evaluation, modification (as required to meet operational requirements) and adaptation of commercial-off-the-shelf (COTS) technology in order to minimize total ownership costs. To the maximum extent possible new contracts are targeted for fixed price efforts to control development cost.

**E. Performance Metrics**  
Program Reviews

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	44.172	29.787	6.704	-	6.704	5.696	4.409	4.452	4.479	Continuing	Continuing
1704.: <i>Undersea Warfare</i>	40.192	29.787	6.704	-	6.704	5.696	4.409	4.452	4.479	Continuing	Continuing
9999: <i>Congressional Adds</i>	3.980	-	-	-	-	-	-	-	-	0.000	3.980

**A. Mission Description and Budget Item Justification**

The Anti-Submarine Warfare (ASW) Advanced Development project provides advanced development demonstration and validation of technology for potential surface sonar and combat system applications. Program Element (PE) 0603553N has been designated to support emerging multi-static technologies, and the Chief of Naval Operations' (CNO) ASW Initiative. For FY09 and prior, efforts focused on resolution of technical issues associated with providing capability against the FY09 and beyond threat, with emphasis on shallow water/littoral areas, deep water Undersea Warfare (USW), and demonstration and validation of USW concepts and technology. Key technology areas included active sonar transmissions; advanced signal and data processing; active sonar classification; towed and hull arrays; transducer technology; and periscope detection techniques. Starting in FY07, the CNO's ASW Initiative (formerly known as Task Force ASW) included the development of new and innovative technologies. Efforts associated with these technologies include design, development, integration, and testing of future undersea superiority systems. These systems include distributed sensor systems; Vertical Line Array (VLA); static active buoy fields; submarine countermeasures; compact rapid-effect weapons; longer-range radio systems; multi-static sonar; Continuous Active Sonar (CAS) and Variable Depth Sonar (VDS); and multi-sensor data fusion, including multi-platform data fusion and net-centric USW concepts. An Office of the Chief of Naval Operations (OPNAV) letter of direction limits the scope of this project, beginning in FY10, to the development of CAS/VDS and the continuation of studies in support of the ASW Initiative.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603553N: <i>Surface ASW</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	21.673	29.797	0.867	-	0.867
Current President's Budget	44.172	29.787	6.704	-	6.704
Total Adjustments	22.499	-0.010	5.837	-	5.837
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	19.000	-			
• SBIR/STTR Transfer	-0.371	-			
• Program Adjustments	-	-	5.845	-	5.845
• Rate/Misc Adjustments	-	-	-0.008	-	-0.008
• Congressional General Reductions Adjustments	-0.130	-	-	-	-
• Congressional Add Adjustments	4.000	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *SMALL BUSINESS INSERTION*

	<b>FY 2011</b>	<b>FY 2012</b>
	3.980	-
Congressional Add Subtotals for Project: 9999	3.980	-
Congressional Add Totals for all Projects	3.980	-



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1704.: <i>Undersea Warfare</i>	40.192	29.787	6.704	-	6.704	5.696	4.409	4.452	4.479	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The CNO's ASW initiative is a focused effort to identify the most promising ASW technologies through a process of discovery, assessment, experimentation, and analysis. The CNO's ASW initiative will coordinate the development of technologies which move beyond incremental or marginal improvements in ASW effectiveness. The CNO's vision of "fundamentally changing the way ASW is currently conducted to render the enemy submarine irrelevant against US and coalition forces" necessitates a change in the calculus of how the US Navy conducts ASW. Central to the CNO's ASW initiatives achieving the CNO's vision are several innovative approaches which include using the art-of-the-technologically-possible; minimizing force-on-force; reducing the ASW end-to-end time line; supporting rapid maneuver; developing off-board and distributed ASW detection systems; and finding innovative weapons solutions. To achieve these key approaches, it is essential to develop new ASW technologies and conduct at-sea experiments to prove/disprove technology concepts and collect corroborating data. An OPNAV letter of direction limits the scope of this project, beginning in FY10, to the development of CAS/VDS and the continuation of studies in support of the ASW Initiative.

The CAS/VDS sonar is intended, at a minimum, to support ASW escort missions for the Littoral Combat Ship (LCS). The system shall be developed as an effective and affordable LCS deep water, wide area, and active sonar search capability in the form of a VDS for inclusion as part of the ASW Mission Module. The program shall target LCS-2 as the test platform. Efforts shall include development of a Launch and Retrieval system designed to survive high tow speeds, provide a high sweep rate capability and large stand-off detection ranges and should outperform current systems under all conditions. Components should leverage existing systems such as the Multi-Function Towed Array (MFTA) to limit costs and reduce risk of early efforts. Efforts will also include the conduct of studies to validate performance goals and design options and should leverage the UK 2087 VDS test program to the maximum practical extent. The technology development timeline should be aligned to provide an introduction of the technology through the Advanced Capability Build (ACB) process.

The detection and identification of underwater mines based on structural acoustic features has been successfully demonstrated. This structural acoustics (SA) approach offers significant increases in coverage rates together with higher probabilities of detection and lower false alarm rates against most of the threat mines the Navy is expected to encounter in the foreseeable future. Highly successful blind tests have been carried out demonstrating high performance detection and classification with low false alarm rates. This technology is now in transition to the fleet. The work proposed here, is to develop and demonstrate a long range/high coverage rate ASW systems concept based on the Low-Frequency Broadband (LFBB) technology using a fleet sonar AN/SQQ-89 on surface combatants.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> CNO ASW Initiatives	21.192	29.787	4.209
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>		<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
Continued development of CAS and VDS for surface combat systems, continued studies of new acoustic, non-acoustic, and off-board sensors and continued independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies.				
<b>FY 2012 Plans:</b> Complete CAS/VDS Advanced Development Model (ADM) development, fabrication and land-based testing of towed source, receive array, handling system and in-board electronics, controls and displays. Install CAS/VDS ADM and conduct at-sea testing on a White Ship (commercial leased platform). Initiate efforts to mature ADM to Engineering Development Model (EDM) level. Continue independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies.				
<b>FY 2013 Plans:</b> Install CAS/VDS ADM on Littoral Combat Ship (LCS) platform and conduct at-sea testing of ADM. Continue efforts to mature ADM to EDM level. Continue independent critical review and analysis of alternatives of selected and potential CNO ASW initiative technologies.				
<b>Title:</b> Littoral Remote Sensing (LRS)				
<b>FY 2011 Accomplishments:</b> - Implement advanced development and testing of remote sensing algorithms for detection and classification for maritime targets. - Develop and test simultaneous retrieval of environmental parameters from imagery for use in reducing false alarms and improving classification of maritime targets. - Develop and test fusion of multiple remote sensing retrievals to enhance target exploitation. - Prepare necessary transition paths to allow acceptance of algorithms for operational evaluation, user training, and minimal timelines for operational use.		<b>Articles:</b>	17.500 0	- -
Note: Funding for Littoral Remote Sensing (LRS) was part of the 2011 DoD Omnibus Reprogramming for ASW/ISR Capability.				
<b>Title:</b> AN/SQS-53C Structural Acoustics Sensor Program				
<b>Description:</b> The detection and identification of underwater mines based on structural acoustic features has been successfully demonstrated. This structural acoustics (SA) approach offers significant increases in coverage rates together with higher probabilities of detection and lower false alarm rates against most of the threat mines the Navy is expected to encounter in the foreseeable future. Highly successful blind tests have been carried out demonstrating high performance detection and classification with low false alarm rates. This technology is now in transition to the fleet. The Navy will develop and demonstrate a long range/high coverage rate ASW systems concept based on the LFBB technology using a fleet sonar AN/SQQ-89 on surface		<b>Articles:</b>	1.500 0	- 2.495 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p>combatants. Specifically, using a standard AN/SQQ-53C as a source and the Multi-Function Towed Array (MFTA) as a receiver. In the Speed to Fleet effort, the Navy will build a special processor that will "roll on" the surface combatant and be integrable into the existing AN/SQQ-89 system. The processor will run codes already developed in the ONR programs, but now adapted to the ASW problem. Ultimately, the demonstration will involve testing and documenting the ability of the approach to distinguish and correctly identify low Doppler bottom, near bottom, submarines and false targets as a function of speed and range from target fields.</p> <p><b><i>FY 2011 Accomplishments:</i></b> -Initiate and complete processor build. -Initiate and complete software build.</p> <p><b><i>FY 2013 Plans:</i></b> -Continue processor build. -Continue Software Build.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	40.192	29.787	6.704

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

N/A

**D. Acquisition Strategy**

Competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.  
N/A

**E. Performance Metrics**

Conduct CAS/VDS ADM Sea Tests 3Q12 (White Ship) and 1Q13 (LCS platform).  
Conduct Demonstration Sea Tests 3Q14 (Gray Ship).

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Technology Development	C/CPFF	AAC:NY	1.134	-		-		-		-	0.000	1.134	
Technology Development	C/CPFF	Adaptive Methods:VA	3.788	-		-		-		-	0.000	3.788	
Technology Development	C/CPFF	Alion Sciences:VA	7.000	1.000	Dec 2011	-		-		-	0.000	8.000	
Technology Development	C/CPAF	EG&G:VA	1.550	0.500	Jan 2012	-		-		-	0.000	2.050	
Technology Development	C/CPFF	In-Depth Engineering:VA	2.375	2.000	Dec 2011	-		-		-	0.000	4.375	
Technology Development	C/CPFF	JHU/APL:MD	25.229	-		-		-		-	0.000	25.229	
Technology Development	C/CPFF	L-3 Communications:VA	3.000	-		-		-		-	0.000	3.000	
Technology Development	C/CPFF	Lockheed Martin - ISS:NY	4.610	2.500	Dec 2011	-		-		-	0.000	7.110	
Technology Development	WR	NSWC/Carderock:MD	2.701	0.500	Dec 2011	-		-		-	0.000	3.201	
Technology Development	WR	NUWC/Keyport:WA	0.790	-		-		-		-	0.000	0.790	
Technology Development	WR	NUWC/Newport:RI	26.570	7.898	Nov 2011	-		-		-	0.000	34.468	
Technology Development	C/CPFF	Northrop Grumman:VA	4.684	-		-		-		-	0.000	4.684	
Technology Development	C/CPFF	UT/ARL:TX	4.908	-		-		-		-	0.000	4.908	
Technology Development	C/CPFF	VAR:VAR*	4.694	-		-		-		-	0.000	4.694	
Technology Development	WR	NFESC/PH:CA	0.300	5.050	Dec 2011	-		-		-	0.000	5.350	
Technology Development	MIPR	SSGC:MS	0.153	3.100	Jan 2012	-		-		-	0.000	3.253	
Detection/Classification Algorithms (LRS)	WR	NAWC/Pax River:MD	1.400	-		-		-		-	0.000	1.400	
Detection/Classification Algorithms (LRS)	C/CPFF	VAR:VAR*	6.200	-		-		-		-	0.000	6.200	
Technology Development (LRS)	WR	NRL:DC	1.400	-		-		-		-	0.000	1.400	
Technology Development (LRS)	C/CPFF	VAR:VAR*	8.450	-		-		-		-	0.000	8.450	
Processor Build	WR	NRL:District of Columbia	0.750	-		1.000	Oct 2012	-		1.000	0.000	1.750	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Software Build	WR	NRL:District of Columbia	0.750	-		1.195	Oct 2012	-		1.195	0.000	1.945	
System Install	WR	NRL:District of Columbia	-	-		0.200	Oct 2012	-		0.200	0.250	0.450	
Demonstration Planning and Design	WR	NRL:District of Columbia	-	-		0.100	Oct 2012	-		0.100	0.100	0.200	
Demonstration test	WR	NRL:District of Columbia	-	-		-		-		-	0.750	0.750	
Analysis and Documentation of Demonstration Tests	WR	NRL:District of Columbia	-	-		-		-		-	0.150	0.150	
<b>Subtotal</b>			112.436	22.548		2.495		-		2.495	1.250	138.729	

**Remarks**

Note: Funds identified as LRS (Littoral Remote Sensing) are part of the 2011 DoD Omnibus Reprogramming for ASW/ISR Capability.  
\*Consists of multiple performing activities with funding for each not greater than \$1M per year.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
At-Sea Test/Experiment	WR	ONR:VA	5.500	-		-		-		-	0.000	5.500	
Developmental Test & Evaluation	C/CPFF	AAC:NY	1.067	-		-		-		-	0.000	1.067	
Developmental Test & Evaluation	C/CPFF	JHU/APL:MD	-	1.000	Dec 2011	2.008	Dec 2012	-		2.008	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NRL:DC	0.537	-		-		-		-	0.000	0.537	
Developmental Test & Evaluation	WR	NSMA:VA	0.907	-		-		-		-	0.000	0.907	
Developmental Test & Evaluation	WR	NSWC/Carderock:MD	0.672	0.500	Dec 2011	-		-		-	0.000	1.172	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NUWC/Newport:RI	8.972	2.000	Nov 2011	1.200	Nov 2012	-		1.200	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	UT/ARL:TX	1.844	-		-		-		-	0.000	1.844	
Developmental Test & Evaluation	C/CPFF	VAR:VAR*	1.025	2.996	Jan 2012	0.801	Dec 2012	-		0.801	Continuing	Continuing	Continuing
Enhanced Data Collection	C/CPFF	JHU/APL:MD	4.462	-		-		-		-	0.000	4.462	
Enhanced Data Collection	C/CPFF	UT/ARL:TX	2.000	-		-		-		-	0.000	2.000	
<b>Subtotal</b>			26.986	6.496		4.009		-		4.009			

**Remarks**  
\*Consists of multiple performing activities with funding for each not greater than \$1M per year.

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPAF	BAE Systems:MD	3.736	0.693	Feb 2012	0.175	Dec 2012	-		0.175	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS 5:DC	0.250	0.050	Jan 2012	0.025	Oct 2012	-		0.025	Continuing	Continuing	Continuing
Travel (LRS)	Allot	ONR:DC	0.050	-		-		-		-	0.000	0.050	
<b>Subtotal</b>			4.036	0.743		0.200		-		0.200			

**Remarks**  
Note: Funds identified as LRS (Littoral Remote Sensing) are part of the 2011 DoD Omnibus Reprogramming for ASW/ISR Capability.

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	143.458	29.787	6.704	-	6.704			

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy	<b>DATE:</b> February 2012
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

	<b>Total Prior Years Cost</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
--	-------------------------------	----------------	---------------------	--------------------	----------------------	-------------------------	-------------------	---------------------------------

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

Fiscal Year	2011				2012				2013				2014				2015				2016				2017							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
<b>CNO ASW Initiative</b>																																
Conduct At-Sea Experiments			▲				▲				▲				▲				▲				▲					▲				
Analyze Experimental Data/Studies																																
<b>Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS)</b>																																
Build/Test VDS ADM																																
CAS/VDS ADM At-Sea Tests							White Ship ▲				LCS Platform ▲																					
<b>Littoral Remote Sensing</b>																																
Phase A: Detection/Classification Algorithm Development & Testing																																
Phase B: Develop Multi-sensor Fusion Algorithms & Testing																																
Phase C: Demonstration Test Planning & Execution																																
Phase D: System Installation																																
Phase E: User Training																																



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AN/SQS-53C SAS pg. 1</b>				
CNO ASW Initiative: CNO Experiment/Data Analysis: Conduct At-Sea Experiment (Test Promising Technologies)	1	2011	3	2017
CNO ASW Initiative: CNO Experiment/Data Analysis: Analyze Experimental Data/Studies	1	2011	4	2017
Phase A: Build: Processor Build	1	2013	4	2013
Phase A: Build: Software Build	1	2013	4	2013
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): Build/Test VDS ADM	1	2011	2	2012
Phase A: Build: Milestone B	4	2013	4	2013
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): CAS/VDS ADM Sea Test (White Ship)	3	2012	3	2012
Phase A: Build: System Install	1	2014	2	2014
Continuous Active Sonar (CAS) / Variable Depth Sonar (VDS): CAS/VDS ADM Sea Test (LCS Platform)	1	2013	1	2013
Littoral Remote Sensing: Phase A: Detection/Classification Algorithm Development & Testing	1	2012	4	2012
Phase B: Demonstration: Demonstration Test Planning	2	2014	2	2014
Littoral Remote Sensing: Phase B: Develop Multi-sensor Fusion Algorithms & Testing	2	2012	1	2013
Phase B: Demonstration: Demonstration Tests	3	2014	3	2014
Littoral Remote Sensing: Phase C: Demonstration Test Planning & Execution	3	2012	2	2013
Phase B: Demonstration: Analysis and Documentation of Demonstration Tests	4	2014	4	2014
Littoral Remote Sensing: Phase D: System Installation	1	2013	2	2013
Phase B: Demonstration: Milestone C	4	2014	4	2014

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 1704.: <i>Undersea Warfare</i>
---	---	--

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Littoral Remote Sensing: Phase E: User Training	2	2013	3	2013

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603553N: <i>Surface ASW</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	3.980	-	-	-	-	-	-	-	-	0.000	3.980
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Congressional Add.

**B. Accomplishments/Planned Programs (\$ in Millions)**

<b><i>Congressional Add:</i></b> SMALL BUSINESS INSERTION	FY 2011	FY 2012
<b><i>FY 2011 Accomplishments:</i></b> Provide the DESRON Commander, performing the Anti-Submarine Warfare Commander (ASWC) role, the ability to enhance the execution of Surface ASW by enabling net-centric ASW information exchange between assigned units. Currently the ASWC's two primary sensors, Periscope Detection Radar (PDR), SPS-74, and Surface Ship Sonar, AN/SQQ-89A(V)15, only provide data to the installed ship. Sharing this sensor information will dramatically improve the successful execution of the DESRON Commanders ASW mission. This funding will be used to provide engineering services that support integration, testing, evaluation, and certification of the interfaces between the Undersea Warfare - Decision Support System (USW-DSS) Build 2 and above surface ASW sensors. This will be accomplished by executing a formal test plan that includes: formal External Interface Testing (EIT); formal lab-based software certification; and multiple at-sea testing events as part of Development Testing in preparation for Operational Testing Certification.	3.980	-
<b>Congressional Adds Subtotals</b>	3.980	-

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

Congressional Add.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	549.702	861.366	555.123	-	555.123	860.236	926.870	1,098.191	780.457	Continuing	Continuing
0223: <i>Sub Combat System Improvement (ADV)</i>	49.460	40.688	36.873	-	36.873	36.600	37.603	38.319	38.963	Continuing	Continuing
2033: <i>Adv Submarine Systems Development</i>	47.556	33.723	35.155	-	35.155	30.113	27.861	22.512	32.604	Continuing	Continuing
3197: <i>Undersea Superiority</i>	21.264	-	-	-	-	-	-	-	-	0.000	21.264
3220: <i>SBSD Advanced Submarine System Development</i>	431.422	781.575	483.095	-	483.095	793.523	861.406	1,037.360	708.890	Continuing	Continuing
9999: <i>Congressional Adds</i>	-	5.380	-	-	-	-	-	-	-	0.000	5.380

**A. Mission Description and Budget Item Justification**

This program element supports innovative research and development in submarine hull and combat systems technologies and the subsequent evaluation, demonstration, and validation for submarine platforms. It will increase the submarine technology base and provide subsystem design options not currently feasible. The program element also supports programs transitioning from Science and Technology (S&T), Defense Advanced Research Projects Agency (DARPA), Independent Research and Development, and Small Business Innovation Research (SBIR) projects.

**Project Unit 0223:**

The Advanced Submarine Combat Systems Development non-acquisition (NON-ACAT) Project supports Navy Submarine Acoustic Superiority and Technology Insertion Initiatives through the application of advanced development and testing of sonar and tactical control systems improvements. This Project transitions technologies developed by Navy Technology bases, the private sector, Office of Naval Research (ONR), Future Naval Capabilities (FNC), and DARPA. The Project addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battle space preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. Prototype hardware/software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts will be Advanced Processing Build - Acoustic (APB-A), Advanced Processing Build - Tactical (APB-T), Advanced Processing Build - Imaging (APB-I) and Advanced Sonar Arrays. APBs develop and demonstrate improvements to current and future sonar/combat control systems. The Advanced Sonar Arrays program develops and tests new sensors and demonstrates large array configuration. This Project is funded under demonstration and validation, as it develops and integrates hardware for experimental tests related to specific platform applications.

**Project Unit 2033:**

The Advanced Submarine Systems Development (ASSD) Program is a non-acquisition program that develops and matures technologies for successful integration into future and modernized submarine classes, thus lowering acquisition and life cycle program costs while improving mission capability. ASSD transitions Hull,

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603561N: <i>Advanced Submarine System Development</i>

Mechanical, and Electrical (HM&E) technologies from Science & Technology (S&T) and Research and Development (R&D) to operational platforms; performs tests and demonstrates submarine design and naval architecture products destined for integration into future submarine classes or backfit into existing fleet assets; and operates unique R&D experimentation, modeling, testing and simulation facilities to enhance submarine stealth, maneuverability, capability, and affordability. The program is structured to support near and mid-term technology insertion to achieve future submarine class total ownership cost reductions and requirements, and influence future submarine concept designs and core technologies. Experimentation and demonstration is conducted in a joint warfighting context with other services, (i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force), to enable early assessment of warfighting capabilities, and to contribute to smarter technology selection decisions for potential incremental development. This program also supports Information Exchange Programs and joint Project Arrangements (PA) with the United Kingdom, Canada, and Australia.

Project 2033 is comprised of four budget categories: Stealth, Payloads & Sensors, Advanced Propulsion/Ship Concept Development and Total Ownership Cost/Affordability.

The major developmental efforts include:

Sustainment of Vital Submarine Stealth R&D Capabilities

- Large Scale Vehicle (LSV)
- Intermediate Scale Measurement System (ISMS)
- Submarine Signature Management
- Conformal Array Hull Mechanical & Electrical (HM&E) Technologies
- Stone Mason
- SSN/SSGN Survivability

Development of Technologies to Reduce Submarine Total Ownership Cost:

- Hydraulics Elimination through Electrification
- Advanced CO2 Scrubber
- Corrosion Control

Development of Advanced Propulsion Systems and Ship Concepts:

- Advanced Material Propeller (AMP) Future Naval Capability (FNC)
- DARPA/Navy Tango Bravo Technology Transition
- Control Surface Electric Actuation of Retractable Bow Planes
- Hybrid Multi-Material Rotor Development (HMMR)

Improved Payload & Sensor Capabilities

- Next Generation Towed Array Handler System and Towed Array Reliability
- Innovation Technology Transition
- Universal Launch and Recovery Module (ULRM)
- Irregular Warfare

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>
---	---

Project Unit 3197:  
The Undersea Superiority Project supports offboard Anti-Submarine Warfare (ASW) technologies selected by the Chief of Naval Operations (CNO) ASW Cross Functional Team for technologies that hold the potential for deployment and/or use by submarine platforms. Efforts associated with these technologies include design, development, integration and testing of future Undersea Superiority systems.

Project Unit 3220:  
The objective of the Sea Based Strategic Deterrent (SBSD) Advanced Submarine System Development project is to design and prepare for construction of the replacement of the OHIO Class SSBN.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	608.566	856.326	927.814	-	927.814
Current President's Budget	549.702	861.366	555.123	-	555.123
Total Adjustments	-58.864	5.040	-372.691	-	-372.691
• Congressional General Reductions	-	-0.340			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.380			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.700	-			
• SBIR/STTR Transfer	-12.258	-			
• Program Adjustments	-	-	-371.244	-	-371.244
• Rate/Misc Adjustments	-	-	-1.447	-	-1.447
• Congressional General Reductions Adjustments	-3.006	-	-	-	-
• Congressional Directed Reductions Adjustments	-49.300	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *Adv Sub Sys Dev (Cong)*

	FY 2011	FY 2012
Congressional Add Subtotals for Project: 9999	-	5.380
Congressional Add Totals for all Projects	-	5.380

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 0223: <i>Sub Combat System Improvement (ADV)</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0223: <i>Sub Combat System Improvement (ADV)</i>	49.460	40.688	36.873	-	36.873	36.600	37.603	38.319	38.963	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Project Unit 0223: The Advanced Submarine Combat Systems Development Non-ACAT program supports Navy Submarine Acoustic Superiority and Technology Insertion Initiatives by the application of advanced development and testing of sonar and tactical control systems improvements. This Project addresses technology challenges to improve tactical control in littoral and open ocean environments for a variety of operational missions including peacetime engagement, surveillance, battle space preparation, deterrence, regional sea denial, precision strike, task group support, and ground warfare support. These technologies, developed by Navy technology bases, the private sector, ONR, FNC, and DARPA are then transitioned. Prototype hardware / software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Specifically, the focus of the technology efforts are APB-A, APB-T, APB-I, tactical control, and Advanced Sonar Arrays. APBs develop and demonstrate improvements to current and future sonar/combat control systems. The Advanced Sonar Arrays program develops and tests new sensors and demonstrates large array configuration.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Advanced Processing Build - Acoustic</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> FY11 focused on completing development, integration and initiating land-based testing for APB-11. Developed Temporary Alterations (TEMPALTs) and test plans/procedures for APB-11 land-based and at-sea testing. Initated development of concepts and tactical scenarios for APB-13.</p> <p><b>FY 2012 Plans:</b> FY12 will focus on completing land-based and at-sea testing and the transition for APB-11. Establish content and continue the development of capabilities for APB-13.</p> <p><b>FY 2013 Plans:</b> Continue development of APB-13. Conduct land-based testing of APB-13.</p>	<p>16.923</p> <p>0</p>	<p>15.026</p> <p>0</p>	<p>15.576</p> <p>0</p>
<p><b>Title:</b> Advanced Processing Build - Tactical</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b></p>	<p>8.000</p> <p>0</p>	<p>8.100</p> <p>0</p>	<p>8.200</p> <p>0</p>



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>		<b>PROJECT</b> 0223: <i>Sub Combat System Improvement (ADV)</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
FY11 focused on completing development, integration and initiating land-based testing of APB-11. Developed TEMPALTs and test plans and procedures for APB-11 land-based and at-sea testing. Developed concepts and tactical scenarios for APB-13. <b>FY 2012 Plans:</b> FY12 will focus on completing land-based and at-sea testing and transition for APB-11. Establish content and continue the development of capabilities for APB-13. <b>FY 2013 Plans:</b> Continue development of APB-13. Conduct land-based testing of APB-13.		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Advanced Processing Build - Imaging  <b>FY 2011 Accomplishments:</b> Established groups, charters and infrastructure for commencement of APB-Imaging efforts. APB-11 development efforts began focus on improving imaging system's signal processing to automate repetitive tasks and develop automated detection, tracking and ranging capabilities. Initiated efforts to baseline system performance. Completed development, integration and land-based testing of APB-11. Developed TEMPALTs and test plans/procedures for APB-11 at-sea testing. Developed concepts and tactical scenarios for APB-13. <b>FY 2012 Plans:</b> FY12 will focus on completing at-sea testing and transition for APB-11. Conduct land-based testing. Establish content and initiate the development of capabilities for APB-13. <b>FY 2013 Plans:</b> FY13 will focus on the continued development of APB-13. Conduct land-based testing of APB-13.		10.000 Articles: 0	10.200 0	10.400 0
<b>Title:</b> Advanced Sensors  <b>FY 2011 Accomplishments:</b> Completed Conformal Acoustic Velocity Sonar (CAVES) Large Vertical Array (LVA) warm water at-sea testing and analysis. Light Weight (LW) Low Cost Conformal Acoustic (LCCA) Advanced Development Model (ADM) fabrication is scheduled to be completed by the end of FY11 and tow tests of 3X Twin Line Thin Line (TLTL) and 3X Vector Sensor Towed Array (VSTA) will be completed. <b>FY 2012 Plans:</b>		14.537 Articles: 0	7.362 0	2.697 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 0223: <i>Sub Combat System Improvement (ADV)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
CAVES LVA will complete cold water at-sea testing and analysis. Complete system integration of 12X single line towed array ADM. Conduct 12X ADM Lake Pend Oreille (LPO) and Research Vessel (RV) tests. Complete the 12X ADM TEMPALT development and conduct submarine demonstration.  <b>FY 2013 Plans:</b> Conduct LW LCCA sea test and transition to VA Class program. Continue development and test of Advanced Towed Array Technologies. Initiate development of sensors for the Ohio Class Replacement Program.				
<b>Accomplishments/Planned Programs Subtotals</b>		49.460	40.688	36.873
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>D. Acquisition Strategy</b> Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.				
<b>E. Performance Metrics</b> <ul style="list-style-type: none"> <li>- Advanced Processing Build (APB): Deliver at-sea tested submarine capability improvements to PEO Submarines as prescribed by the Fleet every two years. Conduct milestone reviews with the Milestone Decision Authority and PEO Submarines prior to delivery.</li> <li>- Conducted Conformal Acoustic Velocity Sonar (CAVES) sea test. CAVES provides significant advantages over existing technology; 2/3 of acquisition and installation costs, 10% of life cycle costs, and less impact on hull structure. CAVES/Wide Aperture Array (WAA) replacement of Light Weight WAA provides a cost savings of \$8M - \$13M/ship.</li> <li>- Conducted Low Cost Conformal Array (LCCA) Advanced Development Model (ADM) sea test.</li> <li>- Deliver Twin Line Thin Line (TLTL) Short Aperture (3X) Array, Vector Sensor Towed Array (VSTA) Short Aperture (3X) Array, TLTL &amp; VSTA (3X) Lake Pend Oreille Test Reports.</li> </ul>				

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 0223: <i>Sub Combat System Improvement (ADV)</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	Adaptive Methods:VA	0.925	-		-		-		-	0.000	0.925	Continuing
Product Development	C/CPFF	Alion Sciences:VA	3.267	-		-		-		-	0.000	3.267	Continuing
Product Development	C/CPFF	Chesapeake Science:MD	6.626	0.750	Feb 2012	0.750	Dec 2012	-		0.750	Continuing	Continuing	Continuing
Product Development	C/CPFF	Electric Boat:ME	0.725	1.040	Jan 2012	0.975	Dec 2012	-		0.975	Continuing	Continuing	Continuing
Product Development	C/CPFF	General Dynamics:VA	13.547	0.300	Jan 2012	0.300	Dec 2012	-		0.300	Continuing	Continuing	Continuing
Product Development	C/CPFF	GA Tech Research Institute:GA	2.916	-		-		-		-	0.000	2.916	Continuing
Product Development	C/CPFF	In Depth Engineering:VA	2.650	0.750	Dec 2011	0.750	Dec 2012	-		0.750	Continuing	Continuing	Continuing
Product Development	C/CPFF	JHU/APL:MD	55.816	8.750	Dec 2011	8.350	Dec 2012	-		8.350	Continuing	Continuing	Continuing
Product Development	C/CPFF	Lockheed Martin:VA	33.456	5.500	Dec 2011	5.230	Dec 2012	-		5.230	Continuing	Continuing	Continuing
Product Development	C/CPFF	Lockheed Martin:NY	8.314	0.400	Dec 2011	0.200	Dec 2012	-		0.200	Continuing	Continuing	Continuing
Product Development	C/CPFF	METRON:VA	4.158	-		-		-		-	0.000	4.158	Continuing
Product Development	WR	NSWC/Carderock:MD	22.665	0.750	Dec 2011	0.750	Nov 2012	-		0.750	Continuing	Continuing	Continuing
Product Development	WR	NUWC/Newport:RI	65.228	7.509	Nov 2011	7.290	Nov 2012	-		7.290	Continuing	Continuing	Continuing
Product Development	C/CPAF	NSMA:VA	7.944	1.250	Mar 2012	1.000	Dec 2012	-		1.000	Continuing	Continuing	Continuing
Product Development	WR	ONI:DC	1.545	0.750	Feb 2012	0.500	Dec 2012	-		0.500	Continuing	Continuing	Continuing
Product Development	WR	ONR:VA	2.725	-		-		-		-	0.000	2.725	Continuing
Product Development	C/CPFF	Progeny:VA	3.888	0.200	Jan 2012	0.150	Dec 2012	-		0.150	Continuing	Continuing	Continuing
Product Development	C/CPFF	PSU/ARL:PA	5.058	1.570	Dec 2011	1.340	Dec 2012	-		1.340	Continuing	Continuing	Continuing
Product Development	C/CPFF	SAIC:VA	3.555	-		-		-		-	0.000	3.555	Continuing
Product Development	C/CPFF	SEDNA:VA	5.714	0.750	Dec 2011	0.950	Dec 2012	-		0.950	Continuing	Continuing	Continuing
Product Development	WR	SSC/San Diego:CA	1.513	-		-		-		-	0.000	1.513	Continuing
Product Development	MIPR	U.S. Army Research Lab:MD	1.700	-		-		-		-	0.000	1.700	Continuing
Product Development	MIPR	U.S. Army/MITRE:NJ	4.595	-		-		-		-	0.000	4.595	Continuing
Product Development	MIPR	U.S. Hanscom AFB/MIT Lincoln Labs:MA	10.884	1.400	Feb 2012	1.200	Dec 2012	-		1.200	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 0223: <i>Sub Combat System Improvement (ADV)</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	C/CPFF	UT/ARL:TX	20.575	2.520	Dec 2011	2.350	Dec 2012	-		2.350	Continuing	Continuing	Continuing
Product Development	C/CPFF	VAR:VAR*	9.047	4.424	Dec 2011	3.292	Dec 2012	-		3.292	Continuing	Continuing	Continuing
<b>Subtotal</b>			299.036	38.613		35.377		-		35.377			

**Remarks**  
\*Consists of multiple performing activities with funding for each not greater than \$1M per year.

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support	C/CPAF	Stanley and Associates:VA	1.000	-		-		-		-	0.000	1.000	Continuing
Program Management Support	C/CPAF	BAE Systems:MD	8.399	1.050	Feb 2012	0.766	Dec 2012	-		0.766	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	EG&G:VA	1.900	0.950	Jan 2012	0.665	Dec 2012	-		0.665	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS5:DC	0.435	0.075	Jan 2012	0.065	Oct 2012	-		0.065	Continuing	Continuing	Continuing
<b>Subtotal</b>			11.734	2.075		1.496		-		1.496			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			310.770	40.688		36.873		-		36.873			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2013 Navy</b>		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>
<b>PROJECT</b> 0223: <i>Sub Combat System Improvement (ADV)</i>		

Fiscal Year	2011				2012				2013				2014				2015				2016				2017							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
<b>Advanced Processing Build (Acoustic, Tactical and Imaging)</b>																																
<b>Conformal Acoustic Velocity Sonar / Large Vertical Array</b>																																
<b>Light Weight Low Cost Conformal Array (LW LCCA)</b>																																
<b>Advanced Towed Array Technology</b>																																
<b>Ohio Class Replacement Program</b>																																

\*Note: Even year APBs (APB-12, APB-14, APB-16), which instituted minor changes, have been eliminated.

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 0223: <i>Sub Combat System Improvement (ADV)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0223</b>				
APB-11 Sea Test	2	2012	2	2012
Transition APB-11 to ARCI/BYG-1	3	2012	3	2012
APB-13 Sea Test	3	2014	3	2014
Transition APB-13 to ARCI/BYG-1	4	2014	4	2014
APB-15 Sea Test	3	2016	3	2016
Transition APB-15 to ARCI/BYG-1	4	2016	4	2016
CAVES LVA At-Sea Test (warm water)	3	2011	3	2011
CAVES LVA At-Sea Test (cold water)	2	2012	2	2012
Transition to VA Class SSNs (CAVES/LVA)	1	2011	4	2012
LW LCCA ADM Development	1	2011	4	2011
LW LCCA Integration/Installation	1	2012	4	2012
LW LCCA ADM Sea Test	1	2013	1	2013
Transition to VA Class SSNs	2	2013	4	2013
Develop Array Technologies	1	2011	4	2014
Build & Test Prototype Arrays	1	2011	4	2014
Conduct Ohio Class Replacement Array Studies	1	2012	4	2017

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy								<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>				<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2033: <i>Adv Submarine Systems Development</i>	47.556	33.723	35.155	-	35.155	30.113	27.861	22.512	32.604	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Advanced Submarine Systems Development (ASSD) Program is a non-acquisition program that develops and matures technologies for successful integration into future and modernized submarine classes, thus lowering acquisition and life cycle program costs while improving mission capability. ASSD transitions Hull, Mechanical, and Electrical (HM&E) technologies from Science & Technology (S&T) and Research and Development (R&D) to operational platforms; performs tests and demonstrates submarine design and naval architecture products destined for integration into future submarine classes or backfit into existing fleet assets; and operates unique R&D experimentation, modeling, testing and simulation facilities to enhance submarine stealth, maneuverability, capability, and affordability. The program is structured to support near and mid-term technology insertion to achieve future submarine class total ownership cost reductions and requirements, and influence future submarine concept designs and core technologies. Experimentation and demonstration is conducted in a joint warfighting context with other services, (i.e. the U.S. Marines, U.S. Army, and the U.S. Air Force), to enable early assessment of warfighting capabilities, and to contribute to smarter technology selection decisions for potential incremental development. This program also supports Information Exchange Programs and joint Project Arrangements (PA) with the United Kingdom, Canada, and Australia.

Project 2033 is comprised of four budget categories: Stealth, Payloads & Sensors, Advanced Propulsion/Ship Concept Development and Total Ownership Cost (TOC)/Affordability.

The major developmental efforts include:

Sustainment of Vital Submarine Stealth R&D Capabilities

- Large Scale Vehicle (LSV)
- Intermediate Scale Measurement System (ISMS)
- Submarine Signature Management
- Conformal Array Hull Mechanical & Electrical (HM&E) Technologies
- Stone Mason
- SSN/SSGN Survivability

Development of Technologies to Reduce Submarine Total Ownership Cost:

- Hydraulic Elimination through Electrification
- Advanced CO2 Scrubber
- Corrosion Control

Development of Advanced Propulsion System and Ship Concepts

- DARPA/Navy Tango Bravo Technology Transition

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>	<b>PROJECT</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603561N: <i>Advanced Submarine System Development</i>	2033: <i>Adv Submarine Systems Development</i>

- Control Surface Electric Actuation of Retractable Bow Planes
- Hybrid Multi-Material Rotor (HMMR)
- Improved Payload & Sensor Capabilities
- Next Generation Towed Array Handler System and Towed Array Reliability
- Innovation Technology Transition
- Universal Launch and Recovery Module (ULRM)
- Irregular Warfare

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Payloads and Sensors/Subtotal Cost	8.397	5.769	13.054
<b>Articles:</b>	0	0	0
<p><b>Description:</b> Develop promising advanced technologies and/or concepts capable of revolutionizing submarine design, reducing cost, improving payload flexibility, increasing capability, reducing weight and space requirements, exploring alternative payload launch mechanisms, increasing reliability with accompanying decreases in required maintenance, and improving material strength. Develop payload demonstrations targeted at improving flexible ocean interfaces, Intelligence, Surveillance, Reconnaissance (ISR) requirements, and payload and launch retrieval methods from undersea platforms. Conduct Navy and joint SEA TRIALS that take demonstrations to the Fleet in order to assess the operational value of the technologies and systems under consideration. The SEA TRIALS/experiments support examination and assessment of potential new Fleet capabilities based on Sea Power 21.</p> <p><b>FY 2011 Accomplishments:</b> Continued to leverage products between Small Business and Future Naval Concepts Perform preliminary requirements definition for technology transfer initiatives based on small business research studies. Developed, tested, and transitioned ISR technologies to support Irregular Warfare. Conducted SSGN exercises as part of planned exercises to demonstrate an integrated Joint ISR architecture, persistent ISR, and advanced networking capability to Joint Force and local commanders in real time. Experimented as part of Talisman Sabre 2011 (TS11) and included SSGN integration with autonomous vehicles to support Theater Commander's requirements. Conducted operational testing of the SHARC Unmanned Vehicle and integrate those operations into the Naval Oceanographic Office (NAVOCEANO) Glider Operation Center (GOC). Executed evaluation demonstration for the Universal Launch and Recovery Module (ULRM) from an SSGN and commenced prototyping design, manufacturing, designing and TEMPALT installation. The initiative focuses on unmanned systems integration and deployment, procedure development and refinement, and risk reduction activities to transition to a Theatre Commander.</p> <p><b>FY 2012 Plans:</b> Commence concept development and systems improvements for Towed Array Handling System (TAHS) and commence prototype development. Continue to leverage products between Small Business and Future Naval Concepts Perform preliminary</p>			



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>		<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
requirements definition for technology transfer initiatives based on small business research studies. Complete prototype development, test and install TEMPALT for the ULRM.				
<b>FY 2013 Plans:</b> Develop prototype and conduct land-base testing for TAHS. Continue to leverage products between Small Business and Future Naval Concepts. Complete the transition of the SSGN Prototype ULRM to a mission capable unit and develop a SSGN Class OPALT for a mission capable ULRM.				
<b>Title:</b> Stealth/Subtotal Cost		23.732	18.119	13.138
		<b>Articles:</b> 0	0	0
<b>Description:</b> Develop technologies and tools to increase the survivability of submarines by recognizing and mitigating sources of noise and non-acoustic vulnerabilities to ensure submarines can penetrate contested waters and remain undetected in the littorals. Develop technologies and Tactics, Techniques, and Procedures (TTPs) that facilitate new or enhance existing warfighting concepts. Operate the Large Scale Vehicle (LSV 2) and the Intermediate Scale Measurement System (ISMS) to conduct large model experiments for submarines focusing on stealth, maneuvering and control, affordability, and operational effectiveness.				
<b>FY 2011 Accomplishments:</b> Completed development of coupled wake signature prediction tool by performing analysis and comparing to available full scale system. Executed 1/4-scale LSV test to measure flow noise resulting from surface roughness to validate numerical prediction capabilities. Completed qualification testing associated with a new material for use in future conformal arrays. Conducted LSV operations and maintained LSV and ISMS test ranges. Supported OHIO Class SSBN replacement and future VA Class design development. Conducted full-scale baseline trials. Conducted signature measurement trials under the Electromagnetic (EM) Silencing PA with the UK to fabricate and test both a stress magnetization and electric signatures models. Published a degaussing technological report with the UK.				
<b>FY 2012 Plans:</b> Exercise wake signature prediction tool to analyze design concepts associated with future advanced submarine platforms. Support demonstration of imaging technologies being developed to perform inspections under submarine hull treatment material without requiring removal. Conduct LSV maintenance, support, and operations and maintain LSV and ISMS test ranges. Support Virginia Class and Ohio Replacement signature trials. Continue Electromagnetic Silencing PA with the UK executing second stress magnetization and electric model tests focusing on development of signature control algorithms and validation test planning. Funding addresses gaps in stealth and survivability for current and future SSN/SSGN force to execute submarine tactical and strategic operations.				
<b>FY 2013 Plans:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>		<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
				<b>FY 2011</b>
				<b>FY 2012</b>
				<b>FY 2013</b>
<p>Perform initial control algorithm validation and initiate optimization. Perform initial work in expanding wake signature prediction tool to handle non steady-state conditions such as maneuvers and depth changes. Develop and validate performance of control algorithms for both magnetic and electric signatures. Conduct LSV maintenance, support, and operations and maintain LSV and ISMS test ranges. Perform tech refresh at ISMS range. Support Virginia Class and Ohio Replacement signature trials. Continue Electromagnetic Silencing PA with the UK executing the third (four planned) scale stress magnetization and electric model experiments. Funding addresses gaps in stealth and survivability for current and future SSN/SSGN force to execute submarine tactical and strategic operations.</p>				
<p><b>Title:</b> Total Ownership Cost/Affordability/Subtotal Cost</p>				
				<b>Articles:</b>
				8.813
				5.809
				2.982
				0
				0
				0
<p><b>Description:</b> Demonstrate technologies with potential to reduce total ownership costs of submarine systems by lowering construction costs, improving commonality of interfaces, extending the life of parts, and lowering life cycle maintenance requirements.</p>				
<p><b>FY 2011 Accomplishments:</b> Finalized updates to maintenance documentation for Main Ballast Tank (MBT) damping configurations. Performed Navy land-based test and evaluation of the Universal Modular Mast (UMM) linear Electric Actuation System (EAS). Installed UMM linear EAS and Ball Valve Rotary EAS TEMPALTs on USS Missouri (SSN780) to demonstrate electrically-actuated systems at-sea. Continued at-sea data collection and analysis of advanced carbon dioxide (CO2) test cubes. Developed the system procurement specification, and design and build a full capacity CO2 Scrubber prototype (TRL-6) for further technical evaluation of solid sorbent technology. Continued assessment of total ownership cost reduction opportunities for in-service submarines to reduce current and future submarine maintenance cost. Initiated corrosion control opportunities with the United Kingdom (UK). Executed Below Threshold Reprogramming (BTR) to address an emergent issue associated with the Submarine Valve Regulated Lead Acid Batteries (SVRLA). Developed and evaluated battery test equipment, procedures and developed and tested MFX (antimony &amp; cadmium) and battery alloy.</p>				
<p><b>FY 2012 Plans:</b> During at-sea demonstrations monitor and record data on the Ball Valve Rotary EAS and UMM linear EAS TEMPALTs on USS Missouri. Design and build a full-capacity advanced CO2 Scrubber prototype and perform vendor test and evaluation. The prototype is the VA Class Block IV qualified version. Continue corrosion control opportunities with the UK and establish Information Exchange Agreement (IEA). Engage transitional opportunities with ONR corrosion Future Naval Capabilities (FNC) with mutual approved Technology Transition Agreements (TTA).</p>				
<p><b>FY 2013 Plans:</b></p>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>		<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
Remove Ball Valve Rotary EAS and UMM Linear EAS TEMPALTs from USS Missouri and restore shipboard hydraulic service systems. Conduct Navy Test and Evaluation on CO2 Scrubber unit in Navy Laboratory. Continue corrosion control opportunities with the UK. Leverage the S&T effort of ONR FNC projects for further technical maturity and prepare for transition of corrosion prevention technology to the fleet.				
<b>Title:</b> Advanced Propulsion/Ship Concept Developments/Subtotal Cost				
				<b>FY 2011</b>
				<b>FY 2012</b>
				<b>FY 2013</b>
<b>Articles:</b>				6.614
				0
				4.026
				0
				5.981
				0
<b>Description:</b> Overcome technological barriers that have significant impact on submarine HM&E systems so as to enable design options for a submarine with VIRGINIA Class capability in two technical areas: Shaftless Propulsion and Radical Ship HM&E Infrastructure Reduction. Develop submarine alternative propulsion and stern configurations with potential to significantly reduce submarine acquisition costs. Demonstrate critical performance parameters through appropriate scale demonstrators in realistic environmental conditions. Evaluate integration of technologies and approaches for cost reduction in future submarines. Develop understanding of ship concept studies and submarine cost drivers and model analysis. Develop and demonstrate technologies for future submarines in areas of hull and platform technologies, propulsors, ship control, electric actuation, sensors, and self defense. This work will apply to future submarine designs including the long-lead concept work on the OHIO Replacement Program. Evaluate current platforms via full scale signature measurement trials to guide future R&D investments.				
<b>FY 2011 Accomplishments:</b> Continued demonstration and performance testing of TB Shaftless Propulsion prototype. Continued partnership with DARPA on TB Shaftless Propulsion projects. Continued fabrication of Retractable Bow Planes (RBP) Electric Actuation System (EAS) to test bow plane control surface EAS operation. Continued preliminary multi-material characterization/construction and demonstration of multi-material beams, and propulsor design tool for Hybrid Multi-Material Rotor (HMMR).				
<b>FY 2012 Plans:</b> Complete fabrication of RBP EAS. Conduct land-based end-to-end testing of RBP Control Surface EAS. Continue partnership with DARPA on HMMR program to include delivery of coupled design software tool sets and multi-material characterization.				
<b>FY 2013 Plans:</b> Complete land-based testing of RBP Control Surface EAS. Continue partnership with DARPA on HMMR program to include delivery of coupled design software tool sets and multi-material characterization. .				
<b>Accomplishments/Planned Programs Subtotals</b>				47.556
				33.723
				35.155
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>

**D. Acquisition Strategy**

F2033: Sole source Concept Formulation (CONFORM) contracts with the only two submarine design/construction shipyards, General Dynamics Electric Boat (GDEB) and Huntington Ingalls Industries (HII). Engagement with industry to build vendor base and support development of R&D products for enhanced submarine capability via competitively awarded Small Business Innovation Research (SBIR) contracts to support Hull Mechanical & Electrical systems (HM&E).

**E. Performance Metrics**

- To enable transition of a minimum of three technology challenge solutions supporting emergent warfighter needs.
- Sustain critical one of a kind national R&D hydroacoustic infrastructure enabling the design and assessment of VIRGINIA Class cost reduction and the OHIO Replacement designs for affordability.
  - Refine the design of the Advanced Carbon Dioxide Removal System (ACRU) CO2 Scrubber System based on at-sea testing of new solid sorbent materials and the removal of liquid amine system from future submarines.
  - Install and perform three at-sea demonstrations for electric actuation of critical ship control and ship system operational components in support of the OHIO Replacement and follow-on VIRGINIA Class Block Upgrades.
  - Assess as-built VIRGINIA and OHIO Class SSBN/SSGN submarine for design drivers/design tools and model validation to define R&D needs for OHIO Class component development and technical design maturity.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	MIPR	DARPA:Arlington, VA	1.084	-		-		-		-	1.084	2.168	2.168
Product Development	SS/CPFF	NGSB:Newport News, VA	3.332	0.394	Dec 2011	2.075	Mar 2013	-		2.075	Continuing	Continuing	Continuing
Product Development	WR	NSWC:Dahlgren, VA	5.241	-		-		-		-	0.000	5.241	5.241
Product Development	SS/CPFF	Kollmorgen:N. Hampton, MA	1.100	-		-		-		-	0.000	1.100	1.100
Product Development	SS/CPFF	Oceaneering:Chesapeake, VA	1.900	-		-		-		-	0.000	1.900	1.900
Product Development	SS/CPFF	Boeing:St. Louis, MO	0.925	-		-		-		-	0.000	0.925	0.925
Product Development	SS/CPFF	EB:Groton, CT	36.281	3.429	Mar 2012	8.076	Mar 2013	-		8.076	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Raytheon:Portsmouth, RI	16.034	-		-		-		-	0.000	16.034	16.340
Product Development	WR	NSWC:Carderock, MD	69.183	5.007	Mar 2012	5.366	Mar 2013	-		5.366	Continuing	Continuing	Continuing
Product Development	SS/CPFF	ARL/PSU:State College, PA	4.787	0.700	Jan 2012	0.700	Feb 2013	-		0.700	Continuing	Continuing	Continuing
Product Development	SS/CPFF	UT/ARL:Austin, TX	6.050	-		-		-		-	0.000	6.050	6.050
Product Development	SS/CPFF	JHU/APL:Laurel, MD	15.794	-		-		-		-	0.000	15.794	15.794
Product Development	Various	Various:Various	31.924	1.168	Mar 2012	1.166	Mar 2013	-		1.166	Continuing	Continuing	Continuing
Product Development	WR	NUWC:Newport, RI	52.789	5.671	Mar 2012	2.570	Mar 2013	-		2.570	Continuing	Continuing	Continuing
Product Development	WR	ONR:Arlington, VA	8.066	-		-		-		-	0.000	8.066	8.066
Product Development	SS/CPFF	Lockheed Martin:Bethesda, MD	8.934	-		2.000	Mar 2013	-		2.000	0.000	10.934	8.934
Product Development	WR	SPAWAR:San Diego, CA	5.850	-		-		-		-	0.000	5.850	5.850
<b>Subtotal</b>			269.274	16.369		21.953		-		21.953			

**Remarks**

Various/VAR is used to group multiple activities with small funding levels. Activities will be incrementally funded. The award dates reflect the latest incremental portion funds will obligate.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
---	---	--

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Contractor Engineering Support	SS/CPFF	Various:Various	8.397	0.885	Dec 2011	0.800	Dec 2012	-		0.800	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various:Various	4.353	0.780	Dec 2011	0.700	Jan 2013	-		0.700	Continuing	Continuing	Continuing
Travel	WR	NAVSEA HQ:Not Specified	0.509	0.100	Nov 2011	0.100	Dec 2012	-		0.100	Continuing	Continuing	Continuing
Acquisition Workforce	Various	Not Specified:Not Specified	0.293	-		-		-		-	0.000	0.293	0.293
<b>Subtotal</b>			13.552	1.765		1.600		-		1.600			

**Remarks**

Various/VAR is used to group multiple activities with small funding levels.  
Activities will be incrementally funded. The award dates reflect the latest incremental portion funds will obligate.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	SS/CPFF	EB:Groton, CT	4.846	3.141	Mar 2012	2.827	Mar 2013	-		2.827	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Raytheon:Portsmouth, VA	9.104	-		-		-		-	0.000	9.104	9.104
Developmental Test & Evaluation	WR	NAVAIR:Patuxent, MD	2.593	-		-		-		-	0.000	2.593	2.593
Developmental Test & Evaluation	Various	Various:Various	6.372	-		-		-		-	0.000	6.372	6.372
Developmental Test & Evaluation	WR	NUWC:Newport, RI	10.121	6.357	Mar 2012	2.780	Feb 2013	-		2.780	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC:Carderock, MD	13.255	6.091	Mar 2012	5.995	Feb 2013	-		5.995	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	NGSB:Newport News, VA	0.783	-		-		-		-	0.000	0.783	0.783

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
---	---	--

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	SS/CPFF	JHU/ARL:Laurel, MD	0.305	-		-		-		-	0.000	0.305	0.305
Developmental Test & Evaluation	SS/CPFF	ARL/PSU:State College, PA	0.720	-		-		-		-	0.000	0.720	0.720
Developmental Test & Evaluation	WR	NSWC:Dahlgren, VA	1.320	-		-		-		-	0.000	1.320	1.320
<b>Subtotal</b>			49.419	15.589		11.602		-		11.602			

**Remarks**  
 Various/VAR is used to group multiple activities with small funding levels.  
 Activities will be incrementally funded. The award dates reflect the latest incremental portion funds will obligate.

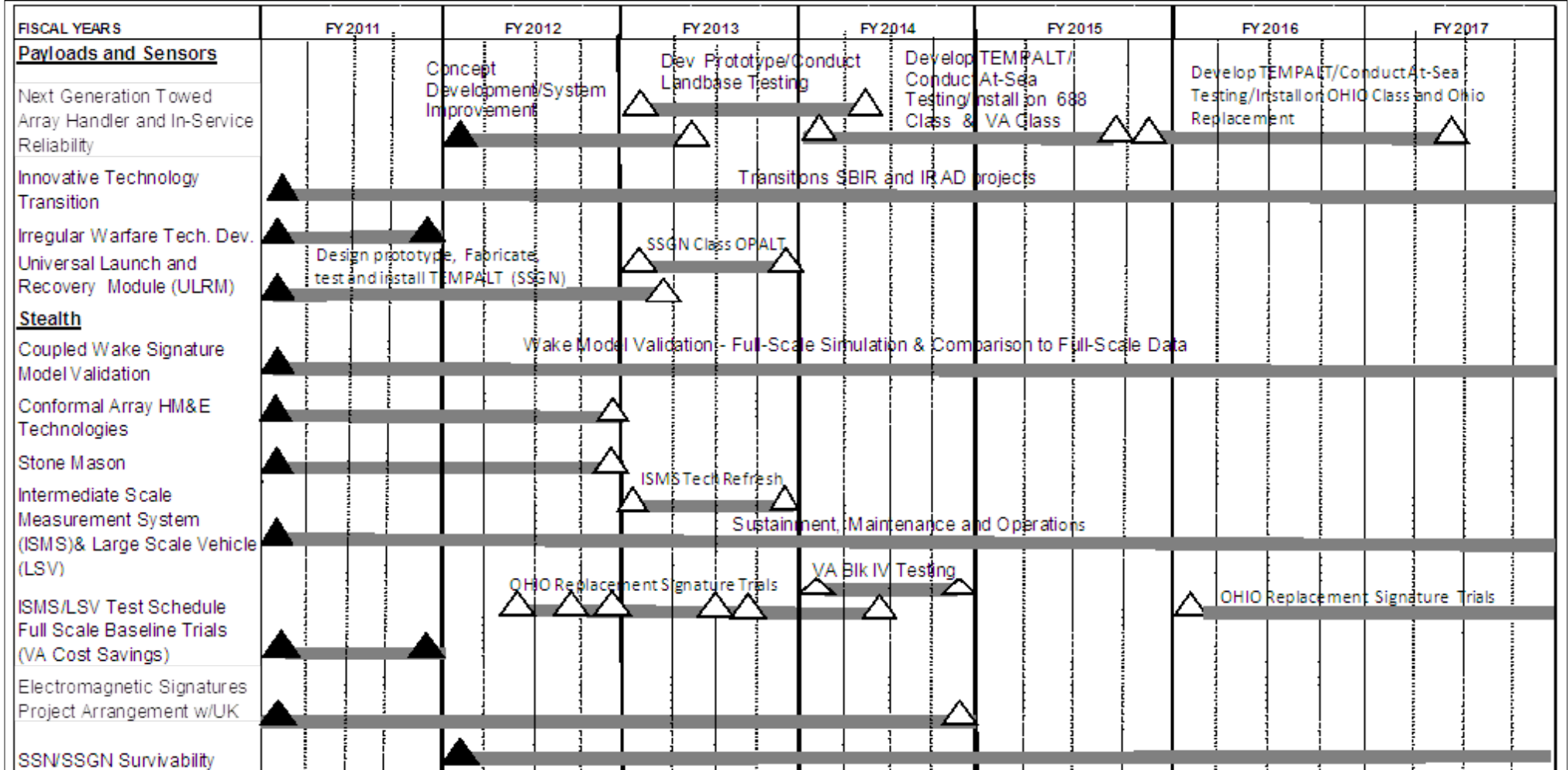
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>		332.245	33.723		35.155		-	35.155			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
---	---	--

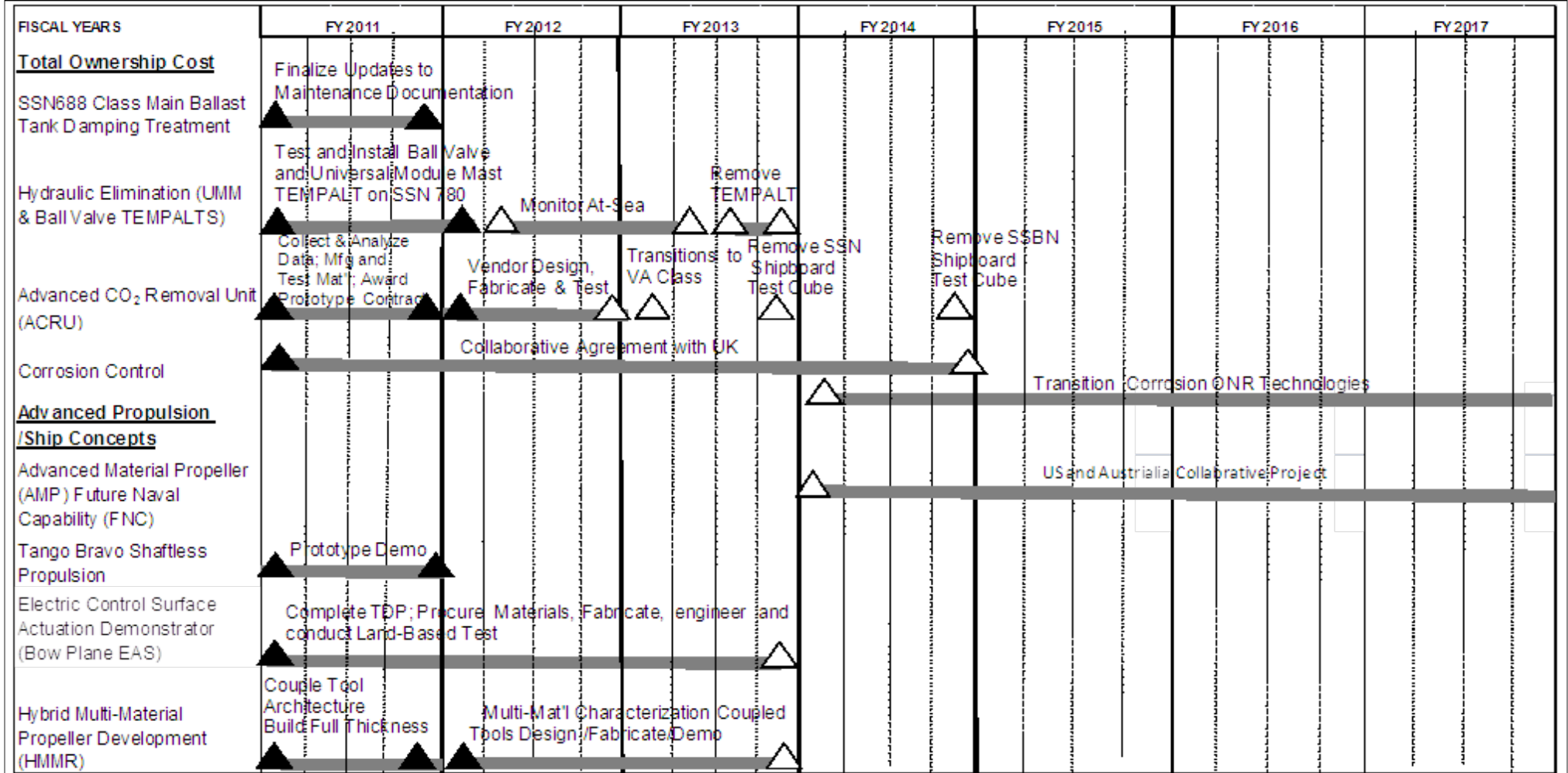




**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
---	---	--



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2033</b>				
P&S Towed Array Handling System (TAHS) - Concept Development	1	2012	2	2013
P&S TAHS - Prototype Dev & Landbase Testing	1	2013	2	2014
P&S TAHS - Dev TEMPALT/Install/Conduct At-Sea Testing for 688 and VA Class	1	2014	3	2015
P&S TAHS - TEMPALT/Install/Conduct At-Sea Testing for Ohio and Ohio Replacement	4	2015	2	2017
P&S Innovation Technology Transition SBIR/IRAD Projects	1	2011	4	2017
P&S Irregular Warfare Technology Development/Test/Transition	1	2011	4	2011
P&S Universal Launch and Recovery Module (ULRM) Design/Fabricate/Test/Install Prototype	1	2011	1	2013
P&S ULRM SSGN Class OPALT	1	2013	4	2013
STEALTH Coupled Wake Signature Model Validation	1	2011	4	2017
STEALTH Conformal Array HM&E Technologies	1	2011	4	2012
STEALTH Stone Mason	1	2011	4	2012
STEALTH Intermediate Scale Measurement System (ISMS)/Large Scale Vehicle (LSV) Tech Refresh	1	2013	4	2013
STEALTH ISMS /LSV Sustainment, Maintenance and Operations	1	2011	4	2017
STEALTH ISMS/LSV Test Schedule OHIO Replacement Signature Trials	2	2012	2	2014
STEALTH ISMS/LSV Test Schedule VA Blk IV Testing	1	2014	4	2014
STEALTH ISMS/LSV Test Schedule OHIO Replacement Signature Trial	1	2016	4	2017
STEALTH ISMS/LSV Full Scale Baseline Trials	1	2011	4	2011
STEALTH Electromagnetic Signatures Project Arrangement (PA) w/UK	1	2011	4	2014
STEALTH SSN/SSGN Survivability	1	2012	4	2017

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 2033: <i>Adv Submarine Systems Development</i>
---	---	--

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
TOC SSN 688 Class Man Ballast Tank Damping Treatment, Update Maint. Docmnt.	1	2011	4	2011
TOC Hydraulic Elimination Ball Valve & UMM TEMPALT	1	2011	1	2012
TOC Hydraulic Elimination Monitor Ball Valve/UMM Monitor At-Sea	2	2012	2	2013
TOC Hydraulic Elimination Ball Valve & UMM TEMPALTs Removal	3	2013	4	2013
TOC Advanced CO2 Removal System Collect & Analyze Data; Mfg, Test Mat'l, Award Prototype Contract	1	2011	4	2011
TOC Advanced CO2 Removal System Vendor Design, Build and Test	1	2012	4	2012
TOC Advanced CO2 Transition to VA Class	1	2013	1	2013
TOC Advanced CO2 Remove SSN Shipboard Test Cube	4	2013	4	2013
TOC Advanced CO2 Remove SSBN Shipboard Test Cube	4	2014	4	2014
TOC - Corrosion Control Collaborative Agreement with UK	1	2011	4	2014
TOC - Transition Corrosion ONR Technologies	1	2014	4	2017
Adv Prop/Ship Concept - AMP US and Australia Collaborative Project	1	2014	4	2017
Adv Prop/Ship Concept - Tango Bravo Shaftless Propulsion	1	2011	4	2011
Adv Prop/Ship Concept - Electric Control Surface Actuation Complete TDP, Procure Material Fabricate, Engineer, and Conduct Land Based Test	1	2011	4	2013
Adv Prop/Ship Concept - HMMR Development Coupled Tool Architecture, Build Full Thickness	1	2011	4	2011
Adv Prop/Ship Concept - Multi-Material Characterization Coupled Design Tools	1	2012	4	2013

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3197: <i>Undersea Superiority</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3197: <i>Undersea Superiority</i>	21.264	-	-	-	-	-	-	-	-	0.000	21.264
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Project Unit 3197: This Project supports Navy Undersea Superiority through the application of advanced development and testing of organic and offboard sonar and tactical control systems. This Project transitions technologies developed by Navy technology bases, the private sector, ONR, Future Naval Capabilities, and DARPA. This non-acquisition Project addresses technology challenges to improve Anti-Submarine Warfare (ASW) in littoral and open ocean environments for a variety of operational missions by relevant tactical ASW capabilities. Prototype hardware/software systems are developed to demonstrate technologically promising system concepts in laboratory and at-sea submarine environments. Technologies are selected by the CNO's ASW Initiative which was established to support the CNO's vision to "fundamentally change the way ASW is currently conducted to render the enemy submarine irrelevant against US and coalition forces". This Project matures promising Undersea Warfare (USW) technologies via an incremental development methodology, establishes military utility through sea testing and self assessment, and supports transition to production as merited by results.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Undersea Superiority			
<b>Articles:</b>	21.264 0	-	-
<b>FY 2011 Accomplishments:</b> Completed fabrication and tested upgraded version of Deep Water Active Detection System (DWADS) design based on initial at-sea and MUA test results. Conduct at-sea demonstration of updated DWADS (4Q11). Complete development of Reliable Acoustic Path Vertical Line Array (RAP VLA) and conduct at-sea demonstration (4Q11) of a fully functioning prototype. Complete studies, analysis and assessments of potential transformational ASW technologies.			
<b>Accomplishments/Planned Programs Subtotals</b>	21.264	-	-

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

N/A

**D. Acquisition Strategy**

Use competitively awarded contracts from Broad Agency Announcement (BAA) solicitations.

**E. Performance Metrics**

- Reliable Acoustic Path Vertical Line Array (RAP VLA) provides detection of quiet diesel submarines at ranges 3 to 7 times water depth. Completed RAP VLA development and conducted a Deep Digital Array sea test and an Engineering Integration test.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3197: <i>Undersea Superiority</i>
<p>- Deep Water Active Detection System (DWADS) - participated in Distributed Netted System (DNS) 10-1 Prototype testing in Convergence Zone and Valiant Shield 10 with Integrated Units.</p>		

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3197: <i>Undersea Superiority</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	C/CPFF	In Depth Engineering:VA	0.900	-		-		-		-	0.000	0.900	0.900
Product Development	C/CPFF	JHU/APL:MD	12.516	-		-		-		-	0.000	12.516	12.516
Product Development	C/CPFF	Lockheed Martin:VA	19.675	-		-		-		-	0.000	19.675	19.675
Product Development	C/CPFF	Lockheed Martin:CA	22.746	-		-		-		-	0.000	22.746	23.365
Product Development	WR	Marine Acoustics Inc.:NC	0.363	-		-		-		-	0.000	0.363	0.363
Product Development	WR	Naval Research Lab:DC	0.885	-		-		-		-	0.000	0.885	0.885
Product Development	WR	NUWC/Newport:RI	3.866	-		-		-		-	0.000	3.866	3.866
Product Development	C/CPFF	Scientific Solutions Inc:NH	0.500	-		-		-		-	0.000	0.500	0.500
Product Development	MIPR	U.S. AFB/MIT Lincoln Labs:MA	1.200	-		-		-		-	0.000	1.200	1.200
<b>Subtotal</b>			62.651	-		-		-		-	0.000	62.651	63.270

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test and Evaluation	C/CPFF	JHU/APL:MD	7.780	-		-		-		-	0.000	7.780	7.780
Test and Evaluation	WR	NUWC/Newport:RI	6.657	-		-		-		-	0.000	6.657	6.657
Test and Evaluation	WR	SPAWAR, San Diego:CA	1.600	-		-		-		-	0.000	1.600	1.600
Test and Evaluation	MIPR	US AFB/MIT Lincoln Labs:MA	0.150	-		-		-		-	0.000	0.150	0.150
Test and Evaluation	C/CPFF	UT/ARL:TX	2.400	-		-		-		-	0.000	2.400	2.400
Test and Evaluation	WR	VAR:VAR*	5.318	-		-		-		-	0.000	5.318	5.318
<b>Subtotal</b>			23.905	-		-		-		-	0.000	23.905	23.905

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3197: <i>Undersea Superiority</i>
---	---	---

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

**Remarks**  
\* Consists of multiple performing activities with funding for each not greater than \$1M per year.

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPAF	BAE SYSTEMS:MD	1.200	-		-		-		-	0.000	1.200	1.200
Travel	WR	NAVSEA PEO IWS5:DC	0.130	-		-		-		-	0.000	0.130	0.130
<b>Subtotal</b>			1.330	-		-		-		-	0.000	1.330	1.330

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			87.886	-		-		-		-	0.000	87.886	88.505

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3197: <i>Undersea Superiority</i>
---	---	---

Fiscal Year	2011				2012				2013				2014				2015				2016				2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>DWADS</b>																												
Design/Development																												
Sea Test / MUA				▲																								
<b>RAP VLA</b>																												
Design/Development																												
Sea Test / MUA				▲																								

Note: Prior to FY09 this effort was funded via Project 2033.



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3197: <i>Undersea Superiority</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3197</b>				
DWADS Design/Development	1	2011	3	2011
DWADS Fully Functional Prototype Sea Test/MUA	3	2011	4	2011
RAP/VLA Design Development	1	2011	3	2011
RAP/VLA Fully Functional Prototype Sea Test/MUA	3	2011	4	2011

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>				<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3220: <i>SBSD Advanced Submarine System Development</i>	431.422	781.575	483.095	-	483.095	793.523	861.406	1,037.360	708.890	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Sea Based Strategic Deterrent (SBSD) Advanced Submarine System Development project supports the OHIO Replacement (OR) program. The funding applies to the design, systems engineering, prototyping, and vendor qualification activities needed to execute the schedule for Common Missile Compartment (CMC) design, whole ship design, and component technologies development for the next generation US ballistic missile submarine. This RDT&E program supports cooperation with the United Kingdom (UK) to maintain strategic deterrence, based on a single effort to develop a common missile compartment as agreed by the UK Secretary of State for Defence and the US Secretary of Defense in 2009.

The OHIO Replacement program strategy is to maximize the re-use of existing OHIO systems and new designs from VIRGINIA Class (as applicable), focus on Life Cycle Total Ownership Cost (TOC) affordability, and meet the higher standards required for this SSBN to achieve mission success in a challenging environment.

\* The phasing of this project differs from the profile in the FY 2012 President's Budget request following the delay in procurement of the SSBN(X) lead ship by two years. Successful execution of the FY 2013 efforts is contingent upon use of appropriated FY2012 funding.

The following key activities support a ship acquisition program to replace the OHIO Class SSBNs:

1. Design and development of a missile compartment, launch system, and strategic support systems to meet US strategic requirements while cooperating with the UK on modernizing its strategic deterrent in accordance with Presidential direction (December 2006).
2. Concept and System Definition for remaining portions of the ship will be accomplished by the design/ build/ sustain approach modeled after the VIRGINIA Class program.
3. Development of advanced submarine platform technologies to provide capabilities needed to enhance platform operational effectiveness and minimize life cycle cost.

OR Concept and System Definition Prototyping, and Technology Development Efforts

The OR program supports design, systems engineering, prototyping and vendor qualification activities needed to develop CMC design, the OHIO Replacement whole ship design, and component development. The OR design timelines are based on the approach proven on VIRGINIA Class Program, adjusted for the additional complexity of a missile compartment and Strategic Weapons Systems (SWS). Planned technical studies and prototyping are necessary to reduce risks associated with updating SSBN system designs for current technical standards and demonstrating design feasibility of technical options to inform the establishment of detailed requirements.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>
---	---	---

The Navy continues investing \$150M (\$50M/year in FY 2012-2014) in Design for Affordability (DFA) initiatives similar to those employed successfully for VIRGINIA Class, but will be further tailored to the uniqueness of OHIO Replacement to drive down overall program costs. Efforts will focus on reducing ship construction costs through implementing more effective design features to produce a more affordable/producing class. As part of this effort, alternative contracting strategies will be examined.

Activities planned for FY 2012 and 2013 are required to maintain the development schedule for the first article of the Common Missile Compartment in 2015 and fully supports the UK Successor Programme. The CMC will mature required technologies and to re-host the TRIDENT II D5 SWS (Launcher, Fire Control and Navigation) while ensuring no degradation to D5 security, safety and performance. In addition, whole ship design efforts are focused on technologies requiring significant development times and those technologies with early design impacts. These include propulsor development, ship control (e.g., control surfaces) and ship signatures. These technologies are critical to understand stealth capabilities for a ship class that will be in service until the 2080s. Ship concept design efforts include important pre-construction activities such as trade studies of ship requirements, risk characterization of technology options, improvement and validation of performance prediction tools and improvement of design tools. Technology development will address maturation of technologies that must be mature to support ship design and construction schedules such as the propulsor, maneuvering/ship control and signatures.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> CMC Design and Prototyping</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Continue efforts for the design and development of the CMC to include: related sections of the ship specification, missile tube requirements review, and commencement of the missile tube detailed design and first article missile quad pack design. Continue CMC system diagrams. On-site installation of the missile tube integration fixture and execution of the missile tube quarter crown and barrel prototype quad. Continue concept studies and commence preliminary designs for additional fixtures. Continue casting vendor qualification and concept design of missile tube quad to hull manufacturing prototypes to validate planned missile compartment production techniques. Continue system engineering efforts to refine the required CMC build strategy. Continue planning activities and trade studies for CMC test facilities. Commence initial planning, development, and testing of missile tube to keel robotic welding.</p> <p><b>FY 2012 Plans:</b> Continue efforts for the design and development of the CMC to include: completion of sections of the CMC ship specification, continue missile tube detailed design and first article missile quad pack design. Continue CMC system diagrams. Continue design and prototype efforts and manufacturing of additional fixtures. Continue validation of missile tube to missile tube quad pack production techniques. Continue validation and verification of the casting design and preliminary design of the missile tube quad to hull manufacturing fixture prototypes to validate planned missile compartment production techniques. Continue system engineering efforts to define the required CMC testing during the build cycle. Commence detailed design Missile Compartment</p>	<p>171.017</p> <p>0</p>	<p>387.266</p> <p>0</p>	<p>101.377</p> <p>0</p>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
studies. Commence detailed planning activities for CMC test facilities. Continue development and testing of missile tube to keel robotic welding techniques.  <b>FY 2013 Plans:</b> Continue efforts for the design and development of the CMC to include: completion of remaining sections of the CMC ship specification, drawings of the first article missile tube quad pack, and CMC system diagrams. Review missile tube drawings and commence CMC arrangements. Continue validation of missile tube to missile tube quad pack production techniques. Continue design and prototype efforts and manufacturing of additional fixtures. Continue validation and verification of the casting design and preliminary design of the missile tube quad to hull manufacturing fixture prototypes to validate planned missile compartment production techniques. Continue system engineering efforts to define the required CMC testing during the build cycle. Continue detailed design Missile Compartment studies. Finalize detailed planning activities for CMC test facilities. Continue development and testing of missile tube to keel robotic welding techniques to support process certification.				
<b>Title:</b> Ship Study and Design  <b>FY 2011 Accomplishments:</b> Commence with preliminary design of forward and aft ends of OHIO Replacement Class. Continue Rest of Ship concept development, system integration, component design, system definition documents, system diagrams, ship arrangements, construction drawings, control surface design and studies. Commence Rest of Ship specifications development. Commence CMC interface with Rest of Ship.  <b>FY 2012 Plans:</b> Continue with preliminary design of forward and aft ends of OHIO Replacement Class. Continue Rest of Ship concept development, system integration, component design, system definition documents, system diagrams, ship arrangements, construction drawings, control surface design and studies. Continue Rest of Ship specifications development. Continue CMC interface with Rest of Ship. Develop ship manufacturing assembly plan.  <b>FY 2013 Plans:</b> Continue with preliminary design of forward and aft ends of OHIO Replacement Class. Continue Rest of Ship concept development, system integration, component design, system definition documents, system diagrams, ship arrangements, construction drawings, control surface design and studies. Continue of Ship specifications development. Continue CMC interface with Rest of Ship.		47.600 <b>Articles:</b> 0	36.525 0	39.276 0
<b>Title:</b> NAVSEA R&D and Prototyping  <b>FY 2011 Accomplishments:</b>		32.094 0	84.383 0	98.174 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continue Technology Development efforts for corrosion control, undersea sensor suite, propulsor, shafting system, hydrodynamics, maneuvering, ship control, composites, component development, ship signatures, above/below water sensors, shock, and structures. <b>FY 2012 Plans:</b> Continue Technology Development efforts for corrosion control, undersea sensor suite, propulsor, shafting system, hydrodynamics, maneuvering, ship control, composites, component development, ship signatures, above/below water sensors, shock, and structures. <b>FY 2013 Plans:</b> Continue Technology Development efforts for corrosion control, undersea sensor suite, propulsor, shafting system, hydrodynamics, maneuvering, ship control, composites, ship signatures, above/below water sensors, shock, and structures.				
<b>Title:</b> Test and Evaluation <b>Articles:</b>		1.193 0	2.515 0	2.700 0
<b>FY 2011 Accomplishments:</b> Approved Test and Evaluation Strategy. Drafted Live Fire Test and Evaluation (LFT&E) Master Plan. Continue efforts to identify T&E requirements for the program and interface with OSD oversight organizations for T&E. <b>FY 2012 Plans:</b> Update Test and Evaluation Strategy for approval in January 2012. Continue efforts to identify T&E requirements for the program and interface with OSD oversight organizations for T&E. Continue drafting Test and Evaluation Master Plan (TEMP) and refining LFT&E Master Plan. Complete Early Operational Assessment One and Vulnerability Assessment One. <b>FY 2013 Plans:</b> Continue efforts to identify T&E requirements for the program and interface with OSD oversight organizations for T&E. Complete and route TEMP and LFT&E Master Plan for approval. Complete Commander Operational Test and Evaluation Force (COMOPTEVFOR) Mission Based Test Design Integrated Evaluation Framework.				
<b>Title:</b> Strategic Weapons Systems Integration <b>Articles:</b>		92.626 0	120.000 0	135.000 0
<b>FY 2011 Accomplishments:</b> Continue system engineering efforts for the development of SWS system diagrams as they interface with the CMC. Continue concept and design work to develop a missile launch tube test facility and test stand including refurbishment of a test vehicle to support launch system prototype effort and qualification. Conduct evaluation of missile gas temperature test data acquired during Demonstration and Shakedown Operations (DASO) to verify missile performance in re-hosted environment. Continue system				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
engineering design efforts associated with the physical arrangement drawings of missile tubes and SWS hardware within the CMC and Missile Control Center (MCC).  <b>FY 2012 Plans:</b> Continue system engineering efforts required for the technical repackaging of the TRIDENT D5 SWS on the OHIO Replacement submarine. Continue concept and design work to develop a missile launch tube test facility and test stand including refurbishment of a test vehicle to support launch system prototype effort and qualification. Initiation of system engineering efforts related to development of Special Test Vehicles. Continue system engineering design efforts associated with the physical arrangement drawings for SWS equipment within the CMC and MCC.  <b>FY 2013 Plans:</b> Continue system engineering efforts required for the technical re-hosting of the TRIDENT II (D5) SWS on the OHIO Replacement submarine; including review and modification of SWS Interface Drawings, SWS Subsystem preliminary design, and Software requirements development. Continue system engineering design efforts associated with the physical arrangement drawings for SWS equipment within the CMC and MCC. Limited SWS Test Systems material procurement and builds, Test Berth / Facility modifications and development of Special Test Vehicles. Plan for the development of a Missile Launch Tube Test Capability and Test Stand including refurbishment of a Test Vehicle to support launch system prototype efforts and evaluation / qualification. Initiate systems engineering planning and design efforts for a SWS Ashore integrated SWS/SWSS test capability for OHIO Replacement program.				
<b>Title:</b> Systems Engineering/Program Management		86.892	100.886	56.568
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Continue to provide technical oversight including Program Office management and technical support from government laboratories for review, analysis and modeling. Commence maintenance planning and design for sustainment activities. Commence Design for Affordability (DFA) planning activities.  <b>FY 2012 Plans:</b> Continue to provide technical oversight including Program Office management and technical support from government laboratories for review, analysis and modeling. Continue maintenance planning and design for sustainment activities.  <b>FY 2013 Plans:</b> Continue to provide technical oversight including Program Office management and technical support from government laboratories for review, analysis and modeling. Continue maintenance planning and design for sustainment activities.				
<b>Title:</b> Design for Affordability		-	50.000	50.000
			<b>Articles:</b> 0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p><b><i>FY 2012 Plans:</i></b> Commence execution of Contractor and Government generation of initiatives and business cases associated with reducing ship construction costs through implementing more effective design features to produce a more affordable/producing class. Commence formal Government management efforts of the DFA Program including: generation and management of Design, Construction and Operation &amp; Sustainment Action plans and glide slopes, management of the OHIO Replacement Banker's scorecard, and review and approval of DFA initiatives.</p> <p><b><i>FY 2013 Plans:</i></b> Continue execution of Contractor and Government generation of initiatives and business cases associated with reducing ship construction costs through implementing more effective design features to produce a more affordable/producing class. Continue formal Government management efforts of the DFA Program including: generation and management of Design, Construction and Operation &amp; Sustainment Action plans and glide slopes, management of the OHIO Replacement Banker's scorecard, and review and approval of DFA initiatives.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	431.422	781.575	483.095

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• SCN/1045: <i>SSBN(X)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	777.793	Continuing	Continuing
• RDTEN/3219: <i>SBSD Nuclear Technology Development</i>	178.345	285.367	81.817	0.000	81.817	296.021	360.398	420.770	409.666	Continuing	Continuing

**D. Acquisition Strategy**

The missile compartment will be designed and developed to support the US and UK in development of the OHIO Replacement and Successor SSBN programs. It also enables the potential for a common US-UK CMC production, which would maximize the benefit of the ongoing US-UK partnership in strategic deterrence. Whole ship concepts and System Definition efforts will be performed primarily by the US submarine shipyards. R&D efforts will be performed by Navy laboratories, shipyards, private industry, and University Affiliated Research Centers.

**E. Performance Metrics**

Updated Integrated Master Schedule, and CMC build strategy down-select. Development of Signature Management efforts to address knowledge gap, Concepts for Propulsor and Shafting, and Design Guidance and Interface Control Requirements.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Product Development	SS/CPFF	Ship Design Contractor:EB	117.096	36.525	Oct 2011	39.276	Oct 2012	-		39.276	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Ship Design Contractor DFA Support:EB	-	40.000	Jan 2012	40.000	Jan 2013	-		40.000	Continuing	Continuing	Continuing
Product Development	WR	NSWC:Carderock, MD	93.080	113.876	Oct 2011	82.462	Oct 2012	-		82.462	Continuing	Continuing	Continuing
Product Development	WR	NSWC DFA Support:Carderock, MD	-	2.000	Jan 2012	2.000	Jan 2013	-		2.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	ARL Penn State University:State College, PA	3.219	0.356	Dec 2011	0.363	Dec 2012	-		0.363	0.000	3.938	2.310
Product Development	SS/CPFF	EB:Groton, CT	29.431	30.735	Oct 2011	27.874	Oct 2012	-		27.874	Continuing	Continuing	Continuing
Product Development	SS/CPFF	NGMS:Sunnyvale, CA	32.550	26.208	Oct 2011	26.252	Oct 2012	-		26.252	Continuing	Continuing	Continuing
Product Development	WR	NUWC:Newport, RI	16.750	17.000	Oct 2011	7.384	Oct 2012	-		7.384	Continuing	Continuing	Continuing
Product Development	WR	NUWC DFA Support:Newport, RI	-	8.000	Jan 2012	8.000	Jan 2013	-		8.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Missile Comp Design Contractor-EB:Groton, CT	308.890	387.266	Oct 2011	101.377	Oct 2012	-		101.377	Continuing	Continuing	Continuing
Product Development	SS/CPFF	JHU/APL:Laurel, MD	11.269	6.268	Dec 2011	6.056	Dec 2012	-		6.056	Continuing	Continuing	Continuing
Product Development	SS/CPFF	Draper Labs:Cambridge, MA	3.000	2.750	Oct 2011	3.000	Oct 2012	-		3.000	Continuing	Continuing	Continuing
Product Development	SS/CPFF	LMFS:NY	8.251	5.000	Oct 2011	8.010	Oct 2012	-		8.010	Continuing	Continuing	Continuing
Product Development	Various	NAVSEA:Various	15.131	4.328	Oct 2011	19.622	Oct 2012	-		19.622	Continuing	Continuing	Continuing
Product Development	WR	NOTU:FL	4.400	-		-		-		-	Continuing	Continuing	Continuing
Product Development	SS/CPFF	LMMSC:CA	27.570	21.861	Oct 2011	22.551	Oct 2012	-		22.551	Continuing	Continuing	Continuing
Product Development	C/CPFF	GDAIS:MA	35.181	22.706	Jan 2012	25.553	Jan 2013	-		25.553	Continuing	Continuing	Continuing
Product Development	SS/CPFF	IEC:VA	4.846	1.012	Oct 2011	1.119	Oct 2012	-		1.119	Continuing	Continuing	Continuing
Product Development	WR	NSWC:VA	2.590	4.775	Oct 2011	4.100	Oct 2012	-		4.100	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BAE:MD	13.200	9.297	Oct 2011	9.405	Oct 2012	-		9.405	Continuing	Continuing	Continuing
Product Development	SS/CPFF	BNA:CA	3.487	2.000	Oct 2011	2.002	Oct 2012	-		2.002	Continuing	Continuing	Continuing



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	NSWC Crane:IN	7.724	2.829	Oct 2011	10.492	Oct 2012	-		10.492	Continuing	Continuing	Continuing
Product Development	WR	NWC CL:CA	5.863	4.051	Oct 2011	4.064	Oct 2012	-		4.064	Continuing	Continuing	Continuing
Product Development	SS/CPFF	SPA:VA	2.953	2.581	Oct 2011	2.606	Oct 2012	-		2.606	Continuing	Continuing	Continuing
Product Development	Various	SSP:Various	13.124	8.306	Oct 2011	9.427	Oct 2012	-		9.427	Continuing	Continuing	Continuing
<b>Subtotal</b>			759.605	759.730		462.995		-		462.995			

**Remarks**  
Note: Various is used for multiple activities with different award dates

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Test and Evaluation Support	C/CPFF	T&E Support:Various	0.300	0.420	Oct 2011	0.650	Oct 2012	-		0.650	Continuing	Continuing	Continuing
Government Test and Evaluation Support	WR	T&E Support:Various	2.391	2.095	Oct 2011	2.050	Oct 2012	-		2.050	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.691	2.515		2.700		-		2.700			

**Remarks**  
Note: Various is used for multiple activities with different award dates. Contractor Test & Evaluation Support cost category item funds will be sent to Shipbuilder and Support Contractors to be determined. Government Test and Evaluation Support cost category item funds will be sent to several Navy activities to be determined.

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Management Support	C/CPFF	Various:Multiple Awards	15.450	11.917	Oct 2011	11.431	Oct 2012	-		11.431	Continuing	Continuing	Continuing
Government Management Support	WR	Various:NSWC Carderock, MD	15.872	6.995	Oct 2011	5.636	Oct 2012	-		5.636	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>
---	---	---

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Travel	WR	NAVSEA HQ:Washington, D.C.	0.500	0.418	Oct 2011	0.333	Oct 2012	-		0.333	Continuing	Continuing	Continuing	
<b>Subtotal</b>			31.822	19.330		17.400		-		17.400				

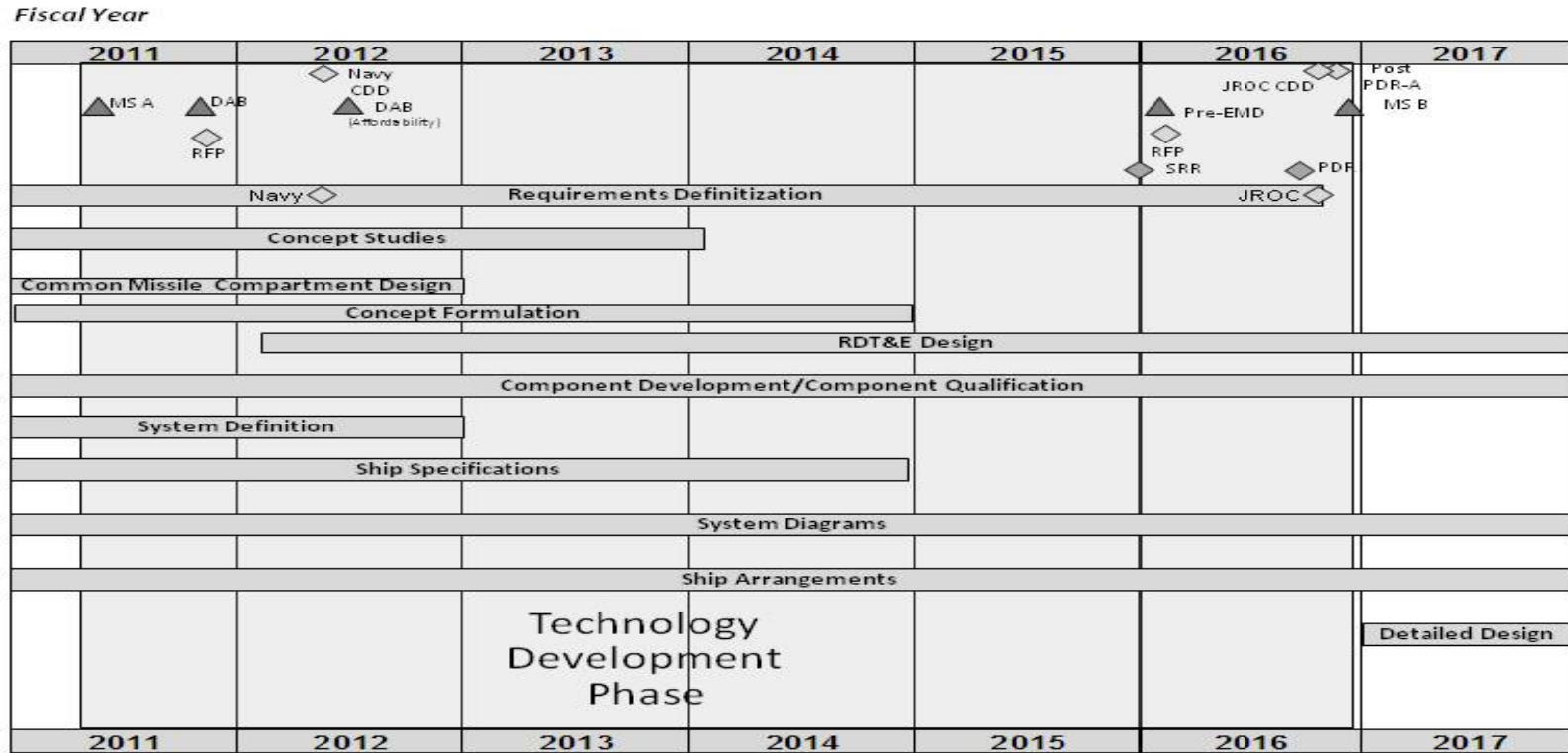
**Remarks**  
Note: Various is used for multiple activities with different award dates

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	794.118	781.575		483.095		-		483.095			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2013 Navy</b>		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>



CDD – Capabilities Development Document      DAB – Defense Acquisition Board  
 SRR – Software Specifications Review      JROC – Joint Requirements Oversight Council  
 EMD – Engineering Manufacturing Development  
 PDR – Preliminary Design Review

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 3220: <i>SBSD Advanced Submarine System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Notes: * Effort began prior to 1st Quarter FY 2011. ** Effort continues past 4th Quarter FY 2017.</b>				
Requirements Definitization*	1	2011	4	2016
Concept Studies*	1	2011	1	2014
Research Development and Prototyping for Lead Ship Design* **	1	2011	4	2017
Component Development/Component Qualification* **	1	2011	4	2017
System Definition*	1	2011	4	2012
Ship Specifications*	1	2011	4	2014
System Diagrams	1	2011	4	2017
Ship Arrangements**	1	2011	4	2017
SCN Design**	1	2017	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603561N: <i>Advanced Submarine System Development</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	-	5.380	-	-	-	-	-	-	-	0.000	5.380
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Congressional Add Projects.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2011	FY 2012
<b><i>Congressional Add:</i></b> Adv Sub Sys Dev (Cong)	-	5.380
<b><i>FY 2012 Plans:</i></b> N/A		
<b>Congressional Adds Subtotals</b>	-	5.380

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

Congressional Add Projects.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603562N: <i>Submarine Tactical Warfare Sys</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	5.520	9.233	9.368	-	9.368	9.492	9.622	9.791	9.989	Continuing	Continuing
0770: <i>Adv Sub Supp Equip Prog</i>	-	3.890	3.989	-	3.989	4.019	4.076	4.152	4.236	Continuing	Continuing
1739: <i>Submarine Arctic W/F Development</i>	5.520	5.343	5.379	-	5.379	5.473	5.546	5.639	5.753	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Submarine Tactical Warfare Systems program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP) and the Submarine Special Operations Support Program. The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D). In order to provide improved operational effectiveness, R&D efforts are focused on Advanced Imaging Developments and Advanced Electronic Warfare Support (ES) Developments. A continuing need exists to improve these capabilities in view of the advancements in potential imaging counter detection, the need to support specialized missions, and the increasingly dense and sophisticated electronic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Ongoing developments in 360 degree imaging systems and electro-optic infra-red vulnerability signature reduction technologies are supporting these needs.

The Submarine Arctic Warfare Development program responds to the increased threat of naval activity in the littoral and the continuing threat of submarine and surface ship activity in regions of the world through the development of advanced submarine R&D technology to provide improved operational capability in shallow water regions. Particular emphasis is placed in the areas of sonar operability and maintainability, littoral operations, mine warfare, tactical surveillance, weapon utility, and other submarine support missions. Efforts include assessment of combat system effectiveness, development of Arctic specific improvements for existing sonars and weapons, development of class specific arctic operational guidelines, and the testing of ice-capable submarine support structures. This program also provides the framework for various R&D programs to conduct test and evaluation in shallow water and arctic regions.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>
---	--

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	5.590	9.253	9.444	-	9.444
Current President's Budget	5.520	9.233	9.368	-	9.368
Total Adjustments	-0.070	-0.020	-0.076	-	-0.076
• Congressional General Reductions	-	-0.020			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.042	-			
• Program Adjustments	-	-	-0.046	-	-0.046
• Rate/Misc Adjustments	-	-	-0.030	-	-0.030
• Congressional General Reductions Adjustments	-0.028	-	-	-	-

**Change Summary Explanation**

Schedule: Not applicable.



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0770: <i>Adv Sub Supp Equip Prog</i>	-	3.890	3.989	-	3.989	4.019	4.076	4.152	4.236	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

A continuing need exists to improve Imaging and Electronic Warfare Support (ES) capabilities in view of the advancements in potential imaging counter detection, the increasingly dense electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine ES and imaging to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection, and Joint Strike. The program is divided into two project categories: Advanced Imaging Project Development and Advanced Electronic Warfare Support Project Development. Both of these categories will allow for the evaluation of the vulnerability of submarine masts, periscopes, and sensors to visual, radar, and infrared detection and evaluation of state of the art technology to implement periscope/mast engineering improvements to reduce counter detection threats, the pursuit of technologies (such as 360 degree imaging systems) to develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies available from academia and other sources. Engineering Demonstration Models (EDMs) are developed, evaluated, and validated in the lab and through at-sea testing.

The Advanced Imaging Project Development projects include the development of: 360 Degree Imaging - Far Term Advanced System, 360 Degree Affordable Modular Panoramic Periscope Mast (AMPPM) - Near Term System, 360 Degree Submarine Panoramic Infra-Red (SPIR) Imaging System, Advanced Head Window Water Shedding, Electro-Optic/Infrared Vulnerability Signature Reduction, and Mast Signature Reduction. The Advanced Electronic Warfare Support (ES) Development Projects include the development of: Distant ES Support and Remote Log-In, Rapid Reprogram Threat Library, Specific Emitter Identification (SEI) Improvements, ES Vulnerability Tool, Enhanced DeInterleavers, ES Server, LPI DF and ES OBT, and Multi-function Modular Mast (MMM) Payloads.

All programs funded in this project are non-acquisition category programs. The test articles identified consist of critical components that will be fully developed during engineering development into Engineering Development Models (EDMs).

ASSEP Program was transferred from a Military Intelligence Program, Program Element (PE) 0303562N in Fiscal Year 2012 back to PE 0603562N.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Advanced Imaging Project Development	-	2.293	1.558
<b>Articles:</b>		0	0
<b>FY 2012 Plans:</b>			
360 Degree Submarine Panoramic Mid-Wave Infra-Red (MWIR) Imaging System; Development			
360 Degree Affordable Modular Panoramic Periscope Mast (AMPPM); Demo TRL 4/5 HDTV NIR, Headwindow			
Advanced Head Window Water Shedding; At-Sea Testing and Bio-Fouling Report			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>		<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Mast Signature Reduction: Thermal Studies Low Profile Mast Development (Universal Controller Software & Hardware Test, EDM #1 Delivery) <b>FY 2013 Plans:</b> 360 Imaging (ONR) - AMPPM - (Demo TRL 6/7 HDTV NIR) Electro-Optic/Infrared Vulnerability Signature Reduction (At-Sea Test) Low Profile Mast Development (Universal Controller EDM #2 Delivery)				
<b>Title:</b> Advanced Electronic Warfare Support (ES) Project Development <b>FY 2012 Plans:</b> 1 - Distant ES Support Remote Log-In: At-Sea Test and Transition to EW 2 - Rapid Reprogram Threat Library: At-Sea Test and Transition to EW 3 - ES Vulnerability Tool: Development 4 - Enhanced DeInterleavers: Development 5 - ES Server: Development 6 - LPI DF: Development 7 - ES OBT: Development <b>FY 2013 Plans:</b> Technical Insertions (TI) - (At-Sea Test - 1 & 2) Technical Insertions (TI) - (Transition #1 & 2) Technical Insertion At-Sea Test #3 Technical Insertion Development #4 & 5		<b>Articles:</b>	- 1.597 0	2.431 0
<b>Accomplishments/Planned Programs Subtotals</b>		-	3.890	3.989
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>D. Acquisition Strategy</b> This project optimizes technology insertion using a build-test-build approach to support ES and imaging operational needs. Operational needs have been based on the tactical requirements identified in CNO letters, Serial N77/3U629212, dated 04 Sep 03, CNO Ltr Ser N772/5U936037 dtd 13 JUN 2005, CNO Ltr Ser N776/4U786103 dtd 1 APR 2004, COMSUBLANT/ COMSUBPAC, Virginia Class SSN Operational Requirements Documentation objectives, ORD for Photonics (ORD #365-87-94) [dtd JUL 1994], Operational Requirements Document (ORD) for ES (ORD # 570-77-00) [dtd 20 DEC 2000], ORD for ISIS (ORD #663-77-05) [dtd MAR 2005], Capability Development Document (CDD) for Submarine EW Systems (Ver-DRAFT) and CDD for Submarine Imaging Systems [Ver OCT 2009-DRAFT]. Project efforts develop				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>	<b>PROJECT</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	0770: <i>Adv Sub Supp Equip Prog</i>

submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from DoD Exploratory Development Programs, industry Independent Research and Development, and other sources. Engineering Demonstration Models (EDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

**E. Performance Metrics**

The RDD program goal is to respond to urgent operational needs within 30 days and provide for rapid development and fielding of prototype solutions within 270 days.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Systems Engineering	WR	NUWC:RI	5.014	2.525	Nov 2011	3.009	Nov 2012	-		3.009	0.000	10.548	
Primary Hardware Development	SS/CPIF	NRL:VA	1.777	-		-		-		-	0.000	1.777	1.777
Primary Hardware Development	SS/CPIF	NAWC:CA	5.769	-		-		-		-	0.000	5.769	5.769
System Engineering	SS/FFP	JHU/ARL:MD	0.318	0.381	Mar 2012	0.375	Mar 2013	-		0.375	0.000	1.074	
Primary Hardware Development	C/CPFF	3 Phoenix:VA	0.451	0.603	Mar 2012	0.338	Mar 2013	-		0.338	0.000	1.392	
Primary Hardware Development	SS/CPIF	NSWCCD Det Bethesda:MD	-	0.105	Jan 2012	-		-		-	0.000	0.105	
<b>Subtotal</b>			13.329	3.614		3.722		-		3.722	0.000	20.665	

**Remarks**  
All funds provided to Performing Activities via reimbursable WR for in-house efforts.

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Engineering Technical Services	C/CPAF	AT&T GSI:Vienna, VA	1.115	0.240	Feb 2012	0.230	Feb 2013	-		0.230	0.000	1.585	1.585
<b>Subtotal</b>			1.115	0.240		0.230		-		0.230	0.000	1.585	1.585

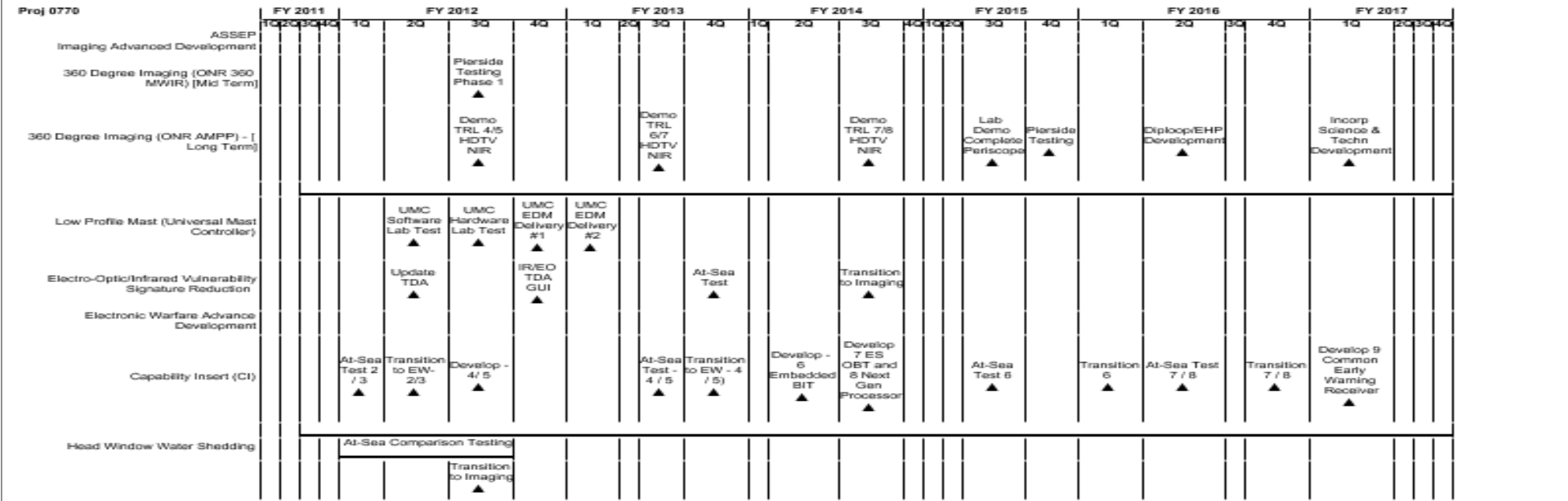
<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Travel	WR	NAVSEA:WNY	0.148	0.036	Oct 2011	0.037	Oct 2012	-		0.037	0.000	0.221	
<b>Subtotal</b>			0.148	0.036		0.037		-		0.037	0.000	0.221	



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--



2013PB - 0603562N - 0770

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0770</b>				
360 Degree Imaging (ONR 360 MWIR) [Mid Term]: Pierside Testing Phase 1	3	2012	3	2012
360 Degree Imaging (ONR AMPP) - [ Long Term]: Demo TRL 4/5 HDTV NIR	3	2012	3	2012
360 Degree Imaging (ONR AMPP) - [ Long Term]: Demo TRL 6/7 HDTV NIR	3	2013	3	2013
360 Degree Imaging (ONR AMPP) - [ Long Term]: Demo TRL 7/8 HDTV NIR	3	2014	3	2014
360 Degree Imaging (ONR AMPP) - [ Long Term]: Lab Demo Complete Periscope	3	2015	3	2015
360 Degree Imaging (ONR AMPP) - [ Long Term]: Pierside Testing	4	2015	4	2015
360 Degree Imaging (ONR AMPP) - [ Long Term]: Diploop/EHP Development	2	2016	2	2016
360 Degree Imaging (ONR AMPP) - [ Long Term]: Incorpor Science & Techn Development	1	2017	1	2017
360 Degree Imaging (ONR AMPP) - [ Long Term]: Long Term	3	2011	4	2017
Low Profile Mast (Universal Mast Controller): UMC Software Lab Test	2	2012	2	2012
Low Profile Mast (Universal Mast Controller): UMC Hardware Lab Test	3	2012	3	2012
Low Profile Mast (Universal Mast Controller): UMC EDM Delivery #1	4	2012	4	2012
Low Profile Mast (Universal Mast Controller): UMC EDM Delivery #2	1	2013	1	2013
Electro-Optic/Infrared Vulnerability Signature Reduction: Update TDA	2	2012	2	2012
Electro-Optic/Infrared Vulnerability Signature Reduction: Update TDA GUI	4	2012	4	2012
Electro-Optic/Infrared Vulnerability Signature Reduction: At-Sea Test	4	2013	4	2013
Electro-Optic/Infrared Vulnerability Signature Reduction: Transition to Imaging	3	2014	3	2014
Capability Insert (CI): At-Sea Test 2 / 3	1	2012	1	2012
Capability Insert (CI): Transition - 2 / 3	2	2012	2	2012
Capability Insert (CI): Develop - 4 ES Server / 5 LPS DF	3	2012	3	2012

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Capability Insert (CI): At-Sea Test - 4 / 5	3	2013	3	2013
Capability Insert (CI): Transition to EW - 4 / 5	4	2013	4	2013
Capability Insert (CI): Develop - 6 Embedded BIT	2	2014	2	2014
Capability Insert (CI): Develop 7 ES OBT and 8 Next Gen Processor	3	2014	3	2014
Capability Insert (CI): At-Sea Test 6	3	2015	3	2015
Capability Insert (CI): Transition 6	1	2016	1	2016
Capability Insert (CI): At-Sea Test 7 / 8	2	2016	2	2016
Capability Insert (CI): Transition 7 / 8	4	2016	4	2016
Capability Insert (CI): Develop 9 Common Early Warning Receiver	1	2017	1	2017
Capability Insert (CI):	3	2011	4	2017
Head Window Water Shedding: Comparison Testing	1	2012	3	2012
Head Window Water Shedding: Transition to Imaging	3	2012	3	2012



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>				<b>PROJECT</b> 1739: <i>Submarine Arctic W/F Development</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1739: <i>Submarine Arctic W/F Development</i>	5.520	5.343	5.379	-	5.379	5.473	5.546	5.639	5.753	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Submarine Arctic Warfare Development project responds to the increased threat of submarine and surface ship activity in arctic regions of the world through the development of advanced submarine concepts. It places particular emphasis on submarine operability and mission support in unique, cold, ice-covered, environments. Efforts include assessment of combat system effectiveness, weapons testing, use of high frequency sonars in arctic regions, testing of ice-capable submarine structures, and development of class-specific arctic operational guidelines. This project also provides the framework for various research and development programs to conduct test and evaluation in shallow water and arctic regions.

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

<p><b>Title:</b> Conduct ICEX and Arctic Transit Mission, ICEX Workup and Training, Ice Camp</p> <p><b>FY 2011 Accomplishments:</b> Conducted Ice Exercise (ICEX) 1-2011 mission, Arctic transit missions, ICEX workups, ICEX training, and Ice Camp. Provided planning and logistics, and support Ice Camp operations and Scientific Ice Exercises (SCICEX) accommodations. Supported Arctic deployments, including inter-Fleet transfers, as required by the Submarine Force Commanders. Investigated, researched, developed and deployed new systems for Arctic submarine support. Supported testing and tactical development required to improve submarine Arctic operability and warfighting. Coordinated and provided technical and logistical support for the Ice Camp in the Arctic Ocean.</p> <p><b>FY 2012 Plans:</b> Provide planning and support for upcoming ICEX mission 1-2014 and SCICEX accommodations. Support Arctic deployments, including inter-Fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic operability and warfighting. Convert Submarine Arctic TEMPALTs from study design to mission/tactical grade on SSN 21 Class Submarines. Complete Fleet demonstration efforts on new Edgetech 2200 Side Scan system on SSN 774 Class Submarines.</p> <p><b>FY 2013 Plans:</b> Provide planning and support for upcoming ICEX mission 1-2014 and SCICEX accommodations. Support Arctic deployments, including inter-Fleet transfers, as required by the Submarine Force Commanders. Investigate, research, develop and deploy new systems for Arctic submarine support. Support testing and tactical development required to improve submarine Arctic</p>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
	<b>Articles:</b>	5.520 0	5.343 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 1739: <i>Submarine Arctic W/F Development</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
operability and warfighting. Convert Submarine Arctic TEMPALTs from study design to mission/tactical grade on SSN 688/688I Class Submarines. Complete Fleet demonstration efforts on new Edgetech 2200 Side Scan system on SSN 688/688I Class Submarines.			
<b>Accomplishments/Planned Programs Subtotals</b>	5.520	5.343	5.379

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

N/A

**D. Acquisition Strategy**

Use sole source and competitively awarded contracts through the Fleet Industrial Supply Center (FISC) regional contracting office for equipment and technical services. NAVSEA University Affiliated Research Center (UARC) omnibus contract will be used for procurement of logistics support for Ice Camps.

**E. Performance Metrics**

- Complete ICEX workup in preparation for the ICEX (at-sea) mission.
- Participate in SCICEX accommodation planning for Arctic Ice Camp.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 1739: <i>Submarine Arctic W/F Development</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	COMSUBPAC:CA	22.627	5.239	Dec 2011	2.804	Nov 2012	-		2.804	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	UW/APL:WA	6.828	-		2.500	Dec 2012	-		2.500	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NUWC/Newport:RI	0.235	-		-		-		-	0.000	0.235	0.235
<b>Subtotal</b>			29.690	5.239		5.304		-		5.304			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support	C/CPAF	EG&G:VA	0.311	-		-		-		-	0.000	0.311	0.311
Program Management Support	C/CPAF	BAE SYSTEMS:MD	0.784	0.104	Feb 2012	0.075	Dec 2012	-		0.075	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA PEO IWS 5:Washington, DC	0.040	-		-		-		-	0.000	0.040	Continuing
<b>Subtotal</b>			1.135	0.104		0.075		-		0.075			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			30.825	5.343		5.379		-		5.379			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 1739: <i>Submarine Arctic W/F Development</i>
---	--	---

Fiscal Year	2011				2012				2013				2014				2015				2016				2017							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
	<b>Arctic Deployment (at Sea)</b> A Submarine Deployment as required by the submarine Type Commander  <b>ICEX Mission (at Sea)</b> A Submarine Ice Exercise operation to improve the Navy's understanding of the Arctic.  <b>Arctic Transit Mission (at Sea)</b> An operation in support of the Navy's need to "surge" a submarine from the Atlantic to the Pacific (or vice versa) via the Arctic.  <b>Arctic Workup (at Sea)</b> A short underway period conducted in the submarine's local operating areas prior to embarking on an Arctic, mission, deployment, or ICEX.  <b>Arctic Training</b> Provides classroom training to the ship's watchstanders by the ice pilot(s) to practice under-ice shiphandling.  <b>ICE Camp (Arctic Ocean)</b> A remote field station set up in the Arctic to conduct submarine operational and tactical testing.  <b>SCICEX Accommodation (at Sea)</b> Support scientific understanding of the Arctic Ocean.																															

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 1739: <i>Submarine Arctic W/F Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 1739</b>				
Arctic Deployment (at Sea) - A Submarine Deployment as required by the submarine Type Commander: Arctic Deployment (at Sea)	1	2011	4	2017
ICEX Mission (at Sea) - A Submarine Ice Exercise operation to improve the Navy's understanding of the Arctic: ICEX Mission (at Sea)	1	2011	4	2011
ICEX Mission (at Sea) - A Submarine Ice Exercise operation to improve the Navy's understanding of the Arctic: ICEX Mission (at Sea) 1	1	2014	4	2014
ICEX Mission (at Sea) - A Submarine Ice Exercise operation to improve the Navy's understanding of the Arctic: ICEX Mission (at Sea) 2	1	2016	4	2016
Arctic Transit Mission (at Sea) - An operation in support of the Navy's need to "surge" a submarine from the Atlantic to the Pacific (or vice versa) via the Arctic: Arctic Transit Mission (at Sea)	1	2011	4	2017
Arctic Workup (at Sea) - A short underway period conducted in the submarine's local operating areas prior to embarking on an Arctic, mission, deployment, or ICEX: Arctic Workup (at Sea)	1	2011	4	2017
Arctic Training - Provides classroom training to the ship's watchstanders by the Ice pilot(s) to practice under-ice shiphandling: Arctic Training	1	2011	4	2017
ICE Camp (Arctic Ocean) - A remote field station set up in the Arctic to conduct submarine operational and tactical testing: ICE Camp (Arctic Ocean) 1	1	2014	4	2014
ICE Camp (Arctic Ocean) - A remote field station set up in the Arctic to conduct submarine operational and tactical testing: ICE Camp (Arctic Ocean) 2	1	2016	4	2016
ICE Camp (Arctic Ocean) - A remote field station set up in the Arctic to conduct submarine operational and tactical testing: ICE Camp (Arctic Ocean)	1	2011	4	2011
SCICEX Accommodation (at Sea) - Support scientific understanding of the Arctic Ocean: SCICEX Accommodation	1	2011	4	2011

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603562N: <i>Submarine Tactical Warfare Sys</i>	<b>PROJECT</b> 1739: <i>Submarine Arctic W/F Development</i>
---	--	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SCICEX Accommodation (at Sea) - Support scientific understanding of the Arctic Ocean: SCICEX Accommodation 1	1	2014	4	2014
SCICEX Accommodation (at Sea) - Support scientific understanding of the Arctic Ocean: SCICEX Accommodation 2	1	2016	4	2016

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	17.835	14.308	24.609	-	24.609	20.833	16.110	15.936	8.056	Continuing	Continuing
2196: <i>Design, Tools, Plans and Concepts</i>	0.618	0.529	0.540	-	0.540	0.550	0.488	0.499	0.502	Continuing	Continuing
3161: <i>NAVSEA Tech Authority</i>	17.217	13.779	24.069	-	24.069	20.283	15.622	15.437	7.554	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Explore alternative surface ship force structures, advanced surface ship and unmanned surface vehicles concepts, and the potential technologies for these force structures and advanced concepts in support of pre-acquisition mission needs analysis, mission area analysis, and planning. The objective is a more affordable, mission capable surface ship force including increased ship production capability; ships with reduce manning, reduced operating and support costs, and greater utilization of the latest technology. The program directly supports the Navy Shipbuilding Plan with state-of-the-art design tools and methods for surface ship force structure alternative studies, ship & unmanned vehicle concept studies, and the actual conduct of surface ship force structure alternative studies and advanced design concept studies for the ships that may become part of the shipbuilding plan.

Project 2196 - This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria.

Project 3161 - This project funds a prioritized portfolio of time-sensitive initiatives supporting NAVSEA Technical Authority through integrated efforts in Cross Platform Systems Development (CPSD), furthering Sea Enterprise through the development of support elements for Technical Warrant Holders and meeting relevant needs of the warfare community. The areas of exploration for CPSD include surface ship concept advanced development, submarine concepts, next generation unmanned surface vehicle, high speed ships/crafts, tool integration and technical data exchange, embedded interoperability engineering, and mission capability systems engineering. The research products developed by this project directly support and influence both immediate fleet requirements and future acquisition programs by providing a range of technically acceptable alternatives and evaluation of emerging technologies.

In particular, tasks within this project continue to directly support interoperability testing and certification for Littoral Combat Ship (LCS) and other platforms in deploying battle groups, development and certification of Safe Operating Envelope (SOE) tools for surface combatants (CG 47, DDG 51, DDG 1000), American Bureau of Shipping (ABS) pilot program to determine engineering-based combatant service life values based on fatigue and other structural analyses, implementation of Component Commonality in current Navy ship acquisition to reduce total ownership and maintenance costs, Total Ownership Cost (TOC) pilot programs, and development of specifications and processes to reduce production costs of platforms.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>
---	--

Tasks within this project continue to directly support the Test and Evaluation Master Plan (TEMP) execution for multiple ship classes including, LCS, JHSV, and DDG 1000 reducing Live Fire Test and Evaluation (LFT&E) costs, furthered validation of hydrodynamic simulation tool supporting DDG 1000 Hull Form Plan (HFP), have increased technology readiness level for aluminum combatants, developed tools to execute the CG 47 Cracking Task Force recommendations, increased situational awareness for deploying strike groups, and conducted feasibility studies of future Railgun capabilities. This project supports NAVSEA's core mission and enhances its ability to conduct independent technical authority which allows for improved performance and reduced cost of current and future naval platforms.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	17.883	14.308	14.114	-	14.114
Current President's Budget	17.835	14.308	24.609	-	24.609
Total Adjustments	-0.048	-	10.495	-	10.495
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.465	-			
• SBIR/STTR Transfer	-0.402	-			
• Program Adjustments	-	-	10.592	-	10.592
• Rate/Misc Adjustments	-	-	-0.097	-	-0.097
• Congressional General Reductions Adjustments	-0.111	-	-	-	-

**Change Summary Explanation**

Added funds in FY 2013 to properly price DDG 1000 hull form plan.



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 2196: <i>Design, Tools, Plans and Concepts</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2196: <i>Design, Tools, Plans and Concepts</i>	0.618	0.529	0.540	-	0.540	0.550	0.488	0.499	0.502	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 the foundation for an affordable and mission capable surface ship force. It also supports the next step in the development of a transformed naval force by accomplishing the pre-milestone A (especially pre-concept decision) efforts for all potential surface ships and craft. These efforts are the required first step in the integration of total ship systems, including combat systems, weapons systems and Hull, Mechanical and Electrical (HM&E) systems. Inadequate early planning and ship concept formulation can result in down-stream design, construction and operational problems. A more subtle and severely negative impact of neglecting this early effort is that the "best" concepts and technologies may never even be considered and our greatest potential ship design advances never realized. Designs and technologies must meet the threat. This project supports this requirement.

This project funds concept development engineering, mission effectiveness analysis, and other analyses for formulation of future surface ship force structure along with development of the tools to accomplish these efforts. Advanced ship concept studies, ship and ship systems technology assessments, and the development and upgrade of ship concept design and engineering tools, methods, and criteria are also funded in this project.

This project accomplishes the following: (1) Develops alternative surface ship force structure concepts including the ships and unmanned vehicles; (2) Evaluates the mission capability effectiveness and costs for these alternative surface fleet architectures; (3) Performs fleet war fighting/mission effectiveness assessment studies; (4) Identifies future surface ship requirements and characteristics necessary to meet future threats and support mission needs; (5) Investigates new affordable ship concepts and evaluates technologies necessary to support these concepts; (6) Provides design methods and automated design tools to develop and evaluate ship concepts; and (7) Supports development of Initial Capabilities Documents (ICD) and analogous early requirements documents for future ships. These efforts are done to support mission analysis; mission needs development and technology assessment in support of future fleet concepts and potential ship acquisition programs. These efforts are fundamental to the Navy's formulation of the future fleet.

Supports concept exploration and mission needs assessment for potential future ship acquisition programs, however, these are not direct efforts for specific, authorized shipbuilding programs. This project supports and maintains this country's naval ship design and engineering capabilities in the area of very early stage (Concept Design) design tools, criteria, and methods.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Ship Concepts and Mission Need Analysis	0.531	0.456	0.465
<b>Articles:</b>	0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 2196: <i>Design, Tools, Plans and Concepts</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Description:</b> Develop ship concepts and perform analysis for potential ships and Force Architecture 5-10 years out in shipbuilding plan.</p> <p><b>FY 2011 Accomplishments:</b> Completed concept designs for small and medium surface combatants with a broad mix of gun, missile, and other emerging weapon topics (high energy, etc.) FY11 Accomplishments also included a trend analysis for unmanned offboard vehicles, a future medium surface combatant follow-on study, and a study on surface ship energy efficiency improvements for reductions in total ownership cost (TOC).</p> <p><b>FY 2012 Plans:</b> Continuation of concept designs for small and medium surface combatants with a broad mix of gun, missile, and other emerging weapon topics (high energy, etc), also to include energy and cost reducing technologies and concepts as related to ship systems.</p> <p><b>FY 2013 Plans:</b> Continuation of concept designs for small and medium surface combatants that develop agile, fuel efficient and flexible platforms capable of operating in required environments. These efforts will enable the design of future affordable surface combatants with increased reliable, efficient, long range, high speed and optimized payload capabilities.</p>				
<p><b>Title:</b> Total Ship Technology Assessment (TSTA)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Analyze the benefits and impacts of new ship, Hull, Mechanical &amp; Electrical (HM&amp;E) concepts, technologies and warfare systems.</p> <p><b>FY 2011 Accomplishments:</b> Expanded TSTA methodology to Advanced Ship Warfare (ASW), Advanced Ship Undersea Warfare (ASUW) products developed under FY10 Concepts and Mission Needs Analysis. FY11 accomplishments also included a future force fleet Small Waterplane Area Twin Hull (SWATH) and a maximum speed study for the fleet of the future.</p> <p><b>FY 2012 Plans:</b> Continuation of expanded TSTA methodology with ASW, ASUW products developed under FY11 Concepts and Mission Needs Analysis, also to include energy and cost-reducing technologies and concepts as related to ship systems.</p> <p><b>FY 2013 Plans:</b> Continuation of FY12 TSTA tasks as well as integration of design of an advanced total platform energy monitoring system as well as reduced manning capabilities.</p>		0.087 0	0.073 0	0.075 0
<b>Accomplishments/Planned Programs Subtotals</b>		0.618	0.529	0.540

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 2196: <i>Design, Tools, Plans and Concepts</i>
---	--	--

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>			<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• RDTEN/0204202N: <i>DDG-1000</i>	348.763	257.580	124.655	0.000	124.655	168.047	163.576	99.767	101.693	0.000	1,771.823
• RDTEN/0603512N: <i>Carrier Systems Development</i>	99.704	54.072	106.871	0.000	106.871	67.139	46.567	47.337	48.185	0.000	641.316
• RDTEN/0603564N: <i>Ship Preliminary Design/Feasibility</i>	10.087	22.210	13.710	0.000	13.710	14.112	6.717	0.000	12.450	0.000	110.214
• RDTEN/0604567N: <i>Ship Contract Design/Live Fire T&amp;E</i>	157.828	121.089	196.737	0.000	196.737	184.183	95.939	52.980	51.997	0.000	952.524
• RDTEN/0603582N: <i>Combat System Integration</i>	33.323	34.123	56.551	0.000	56.551	36.592	32.827	33.569	34.157	0.000	281.964
• RDTEN/0605152N: <i>Studies And Analysis Support</i>	9.451	17.435	20.963	0.000	20.963	26.507	27.885	28.210	28.682	0.000	159.133

**D. Acquisition Strategy**

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments.

**E. Performance Metrics**

None

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3161: <i>NAVSEA Tech Authority</i>	17.217	13.779	24.069	-	24.069	20.283	15.622	15.437	7.554	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 has been established to support NAVSEA Technical Authority through coordinated, collaborative, cross-platform systems development resulting in advanced capabilities across business lines through development adaptation and extension of processes, procedures, and tools necessary to develop and explore alternative surface ship and submarine force structures; advanced submarine, surface ship and unmanned surface vehicle concepts; interoperability; and development of systems level engineering criteria and options to support these force structures and advanced concepts as part of pre-acquisition mission needs analysis, mission area analysis, SCN, and R&D planning. The objective is the coordination of ongoing early-stage concept design and development efforts for cross-platform applicability to result in a more affordable, mission-capable, and interoperable surface ship and submarine forces including ships and submarines with reduced manning, increased ability to produce, reduced operating and support costs, and greater utilization of the latest technology.

NAVSEA Tech Authority efforts under Project 3161, known as the Cross Platform Systems Development (CPSD) Program enhance ongoing efforts within Project 2196 and transition directly to early-stage ship design for Ship and Submarine Preliminary Design and Feasibility Studies and other Program Executive Office (PEO) ship and submarine design programs. While these efforts support concept exploration and mission needs assessment for potential future ship and submarine acquisition programs, they are not direct efforts for specific, authorized shipbuilding programs. This project is the only R&D effort (Government or commercial) that provides a coordinated, collaborative approach to the development of cross-platform naval ship, submarine, and weapon system design and engineering capabilities in the areas of design tools, criteria, and methods. This project also provides innovative solutions for current Fleet issues involving Technical Authority, such as current interoperability issues with new systems or platforms.

Naval Ship System Engineering Tech Authority recapitalization and product development consolidates platform advanced concept development and design tool development in CPSD 1.0 (Platform Concept Advanced Development) and CPSD 2.0 (Platform Design and Certification Tools/Engineering and Tech Data Exchange Development); and aligned standards and requirements development for modularity and system / component commonality within CPSD 3.0 (Ship Systems Engineering/Modular Ship Systems Development). Program product areas support: platform-centric force architecture and concept development and tools (CPSD 1.0, CPSD 2.0), engineering products and system development (CPSD 3.0, CPSD 5.0), and system interoperability and mission capability for delivering ships and submarines (CPSDs 6.0, 8.0, 9.0). CPSD develops and transitions products to Technical Warrant Holder (TWH) community and develop prioritized plans and activities for future products from emerging cross platform technical requirements and associated capabilities.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Platform Concept Advanced Development (CPSD 1.0)	2.176	0.705	1.616
<b>Articles:</b>	0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>		<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
<p><b>Description:</b> This effort directly supports the Navy's ability to understand risk and associated cost of surface and submarine warfare assets; Pre-Milestone A ship, craft, and unmanned surface vehicle (USV) design and analysis.</p> <p><b>FY 2011 Accomplishments:</b> Expanded Capability assessment begun in FY10 to other warfare areas; Continued operational assessment of Long Range Endurance prototype and Autonomous Health Monitoring and Recovery prototype; Continued development of USV interoperability concepts and architectures including technical architectures for USV operations aboard manned and unmanned surface combatants; Continued platform design processes and Standards in development support of next generation submarine concept exploration; Continue development of cross-platform, common modular payload and interface concepts. Continued supporting DDG Flight III upgrade study and requirements development. Identified decisions and best practices in the early stage design process that decrease the overall total ownership costs associated with US Navy warships, including both beneficial and detrimental design decisions from recent ship design and acquisition programs.</p> <p><b>FY 2012 Plans:</b> Continue to identify areas of improvement for the processes of identifying hull selection, general arrangement, machinery arrangement, structural density, access and other decisions and best practices in early stage design that decrease the overall total ownership costs associated with US Navy warships, supporting the Navy's goal of an affordable future fleet.</p> <p><b>FY 2013 Plans:</b> Develop the NAVSEA ship concept development processes for supporting the Long Range Shipbuilding Strategy (LRSS), Capability Based Analyses (CBAs), Analyses of Alternatives (AoAs), and new technology impact assessment. It will develop design space exploration methods that leverage previous Navy design tool investments by employing behavior models of higher fidelity, but more time consuming techniques. This will allow much more comprehensive trade studies in support of Capabilities Based Assessments and Analyses of Alternatives. Continue next generation surface ship, submarine and unmanned vehicle concept exploration.</p>				<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Title:</b> Platform Design and Certification Tools/Engineering and Tech Data Exchange (CPSD 2.0)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This effort supports the development of validation tools to certify the safety and mission capability of platform concepts and subsequently ships and submarines; establishes the integrated NAVSEA too suite to support the execution of NAVSEA Tech Authority. This effort advances platform design methods, design validation tools, cost tools, manpower tools, and tools to aid in rapid total platform definition.</p> <p><b>FY 2011 Accomplishments:</b></p>				3.634 0	0.925 0	3.678 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>				
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continued Technical Warrant Holder Concept Validation Support; continue Concept Design Tool Development - implementation and validation; Continued integration of analytical tools supporting high performance naval ship technologies; Continued assessment of data exchange standards between Live Fire Test and Evaluation (LFT&E) Modeling and Simulation (M&S) and shipbuilder Computer Aided Design (CAD) environments; Continued expansion of M&S integrated environment to additional engineering disciplines. Coordinated data development and data exchange requirements to minimize data regeneration and modification efforts between disciplines and support reuse through design and acquisition process.  <b>FY 2012 Plans:</b> Continue the Advanced Ship Synthesis and Evaluation Tool (ASSET) synthesis program development to modularize its architecture to accommodate insertion of new modules and updating existing needed for advanced ship concepts and emerging ship technology. Continue concept design tool development - implementation and validation; begin certification process.  <b>FY 2013 Plans:</b> Transition the tool development to aide in early stage concept design including Advanced Ship Synthesis and Evaluation Tool (ASSET) and Leading Edge Architecture for Prototyping Systems (LEAPS) to the CONFORM line (PE 0605152N) for funding and execution. Continue to develop tools that allow for reliable, efficient, long range, high speed platforms with optimized payload capabilities. Continue to develop early stage ship design tools supporting total ownership cost reductions through enhancements of performance based cost models and manpower assessments tools.						
<b>Title:</b> Ship Systems Engineering /Modular Ship Systems Development (CPSD 3.0)				3.043	1.585	2.782
				<b>Articles:</b> 0	0	0
<b>Description:</b> This effort supports Ship system development with a focus on technology transition, modularity, ship system technology integration, and design standards for new ship classes for pre-Alternative of Analysis (AoA) studies and ongoing program of record (PoR) ship and submarine development.  <b>FY 2011 Accomplishments:</b> Continued Cost Analysis modeling and simulation via improved cost estimating relationships that include concepts of fabrication complexity; continued survivability, recoverability and vulnerability analyses; Continued developing hydrodynamic safe operating envelope analysis methods and design processes; articulated development of combat system architectures in terms of ship system impacts and cost; Included emerging power, propulsion and auxiliary system architectures and technologies into Modeling Baselines; incorporated integrated power and combat system architectures; Developed open and modular system technical architectures for various platforms development transition of open architecture standards and tools to NAVSEA community. Continued supporting DDG Flight III upgrade study and requirements development. Furthered the development of an aluminum sensitization probe selected as top priority by the CNO's CG-47 Cracking Task Force necessary to support upcoming						

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
modernization availabilities to reduce stress corrosion cracking repair costs and enable CG-47 class to meet and exceed ship service life.  <b>FY 2012 Plans:</b> Initiate data population interface for previously developed design tools including Systems Engineering Application for Quickly Evaluating Shipboard Technologies (SEAQUEST)/LEAPS interface enabling the combination of multiple cross-disciplinary models and applications together in a simulation process flow. Continue analysis of fracture mechanics assessment for failure of aluminum structure after a cracking incident to determine inspection periodicity and temporary repair techniques for in-service LCS and JHSV platforms. Develop Deck Simulating Shock Machine technology.  <b>FY 2013 Plans:</b> Improve processes for technology upgrades during midlife overhauls that allow for affordable fleet/force modernization. Allow for long term strategic use of platform and system modularity to enable an affordable future fleet.				
<b>Title:</b> High Speed Ships and Craft Engineering (CPSD 5.0)  <b>Description:</b> This effort supports the development of concepts for future high speed ships and craft that promise improved mission effectiveness in mobility, survivability, and warfare mission areas.  <b>FY 2011 Accomplishments:</b> Reliability Based Structural Design of Aluminum Ships - Helsinki Class Life Time Loads and Fatigue analyses; Composite propulsor construction and testing; Trials, testing, numeric modeling, guidelines supporting for early stage design of High Speed Ships and Craft. Supported verification and validation of ship stopping as part of current NATO mission. Continued validation testing of Tempest hydrodynamic simulation tool that will help define safe operating envelopes for all ship classes, currently supporting DDG 1000 Hull Form Plan.  <b>FY 2012 Plans:</b> Continue the development of an advanced hydrodynamic simulation tool that has adequate fidelity for all environmental conditions required to define a Safe Operating Envelope (SOE). The effort addresses this need for an analytic approach, which will be verified and validated through correlation with data obtained from analytic tests, sub-scale trials, and ultimately full scale trails. Initial development of analytical tools, complete a prescribed set of model tests and extensive analyses over the next several years to support development of surface ship Safe Operating Envelope (SOE) and Heavy Weather (HW) Guidance products.  <b>FY 2013 Plans:</b> Begin development of improved platform stealth and survivability. Develop a R&D engineering model to supporting the development, design, acquisition, R&D testing and acceptance of a future modular mission ice capable surface combatant.		<b>Articles:</b> 1.759 0	9.979 0	11.052 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>		<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continue development of analytical tools, complete a prescribed set of model tests and extensive analyses over the next several years to support development of surface ship Safe Operating Envelope (SOE) and Heavy Weather (HW) Guidance products. The analytical methods will include development of a simulation tool required to characterize ship motions in environments not within ability to test. The initial HW Guidance will develop from model scale testing and will not be certified. In addition to the development of the Heavy Weather Guidance and SOE, the Hull Form Plan will support the integration of the capability on the ship and associated training guidance for ships crew. This includes the development of the requirements for Human System Integration (HSI), Human Computer Interface (HCI), and training.				
<p><b>Title:</b> Alternative Power Systems Engineering (CPSD 6.0)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This effort investigates concepts for ships and craft with alternative power/propulsion systems evaluating effectiveness in mobility, survivability, and warfare mission areas.</p> <p><b>FY 2011 Accomplishments:</b> Commenced Commercial Pod Foreign Comparative Testing numeric simulations, purpose built podded propulsion design to vulnerability; next generation Integrated prop systems engineering; Shaft and strut hydro numeric modeling of lateral plane force and moment effects on ship stability.</p> <p><b>FY 2012 Plans:</b> Continue investigation of alternative power/propulsion systems evaluating effectiveness in mobility, survivability and warfare mission areas. Begin targeted implementation of weapon systems roadmap. Support modeling of propulsor out of plane force and moment modeling needed for Safe Operating Envelope ship dynamics simulations. This work area supports hydrodynamic capabilities from design through certification.</p> <p><b>FY 2013 Plans:</b> Begin volumetric vulnerability analysis as a part of the Alternate Propulsion Study. Algorithms will be used to refine the estimates of ship damage associated with specified weapons effects supporting early stage design decisions for ship vulnerability.</p>		1.680 0	0.200 0	1.312 0
<p><b>Title:</b> Embedded Interoperability (I/O) Engineering (CPSD 8.0)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> This effort establishes and executes a dedicated process for evaluating the interoperability performance of warfare systems early in the acquisition cycle, prior to certification. Embedded I/O ensures that fewer mission critical system failures degrade the ultimately fielded war fighting capability. Focus on emerging Open Architecture warfare systems, including LCS 1 and 2.</p> <p><b>FY 2011 Accomplishments:</b></p>		2.392 0	-	1.745 0



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Continued interoperability test and assessment of DDG 1000 and CVN 21 (CVN 78); Completed interoperability efforts for LPD 17 (class). Significantly supported the Strike Group Interoperability Capabilities and Limitations (Caps&Lims) documentation process and enhanced the situational awareness of deploying strike groups. Developed an automated method for updating the Caps and Lims documents, which improved the strike groups rapid system interoperability updates.  <b>FY 2013 Plans:</b> Focus on development of high performance, low cost communication solutions for improved information dominance and interoperability.			
<b>Title:</b> Mission Capability Systems Engineering (CPSD 9.0)  <b>Description:</b> This effort supports the development of force-level systems engineering criteria and guidance at the Systems of Systems (SoS) and Family of Systems (FoS) level. This effort allows for the enhanced warfighter and system performance with reduced personnel costs.  <b>FY 2011 Accomplishments:</b> Continued to provide technical standards, definitions and requirements for integrated architecture views for warfare systems of systems, independent technical analysis of warfare systems design and development options and the development of technical artifacts and associated products required by applicable source references by using specially selected Technical Authority Warrant Holders.  <b>FY 2012 Plans:</b> Develop and establish the standards and processes required to develop, test, and deploy Open Architecture as well as Automated Software Test and the Tactical Situation (TACSIT) systems to the Fleet.  <b>FY 2013 Plans:</b> Create design engineering standards incorporating human capacities into system performance. Incorporate the human element into design and control of autonomous and robotic systems. Improve standard that allow for the advancement of materials and improved design for lightweight body armor and equipment.	2.533 0	0.385 0	1.884 0
<b>Articles:</b>			
<b>Accomplishments/Planned Programs Subtotals</b>	17.217	13.779	24.069

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2013</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	
• RDTEN/0204202N: <i>DDG-1000</i>	348.763	257.580	124.655	0.000	124.655	168.047	163.576	99.767	101.693	0.000	1,771.823

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>
---	--	--

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTEN/0603512N: <i>Carrier Systems Development</i>	99.704	54.072	108.871	0.000	108.871	67.139	46.567	47.337	48.185	0.000	643.316
• RDTEN/0603564N: <i>Ship Preliminary Design/Feasibility Studies</i>	10.087	22.210	13.710	0.000	13.710	14.112	6.717	0.000	12.450	0.000	110.214
• RDTEN/0604567N: <i>Ship Contract Design/Live Fire T&amp;E</i>	157.828	121.089	196.737	0.000	196.737	184.183	95.939	52.980	51.997	0.000	952.524
• RDTEN/0603582N: <i>Combat System Integration</i>	33.323	34.123	56.551	0.000	56.551	36.592	32.827	33.569	34.157	0.000	281.964
• RDTEN/0605152N: <i>Studies and Analysis Support</i>	9.451	17.435	20.963	0.000	20.963	26.507	27.885	28.210	28.682	0.000	159.133

**D. Acquisition Strategy**

This is a non acquisition program that develops, evaluates, and validates early stages of total ship concepts and technologies in support of SCN planning and potential future ship and submarine acquisition programs. This program also supports development, demonstration, evaluation, and validation of engineering tools, methods, and criteria for those concept designs and assessments. This program supports the NAVSEA Technical Warrant Holders by providing validated engineering tools, methods, and criteria for ship, submarine and weapon system concept designs and assessments while fostering collaboration and coordination of efforts resulting in more effective use of funding.

**E. Performance Metrics**

Quarterly Program Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Various Contractors:Various	13.701	0.360	Apr 2012	1.605	Apr 2013	-		1.605	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC, NUWC, CDSA:Various	37.491	7.321	Jan 2012	7.178	Jan 2013	-		7.178	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	DRS:Stevensville, MD	-	0.942	Mar 2012	0.346	Oct 2012	-		0.346	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC, NUWC:Various	36.753	0.905	Mar 2012	7.215	Mar 2013	-		7.215	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC:Various	15.178	0.925	Feb 2012	2.018	Feb 2013	-		2.018	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	SPAWAR:Various	1.922	-	Mar 2012	0.090	Mar 2013	-		0.090	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC:Various	-	3.226	Apr 2012	5.517	Oct 2012	-		5.517	Continuing	Continuing	Continuing
<b>Subtotal</b>			105.045	13.679		23.969		-		23.969			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA HQ:Washington, DC	0.500	0.100	Sep 2012	0.100	Sep 2013	-		0.100	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified:Not Specified	0.145	-		-		-		-	0.000	0.145	
<b>Subtotal</b>			0.645	0.100		0.100		-		0.100			

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		105.690	13.779	24.069	-	24.069		

**Remarks**  
Award Dates reflect estimated completion of incremental funding execution.

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>
---	--	--

<b>Proj 3161</b>	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017																								
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q																					
	Platform Concept Advanced Development																																																
	Platform Design and Certification Tools/Engineering and Tech Data Exchange Development																																																
	Ship Systems Engineering/Modular Ship Systems Development																																																
	High Speed Ships and Craft Engineering																																																
	Alternative Power Systems Engineering																																																
	Embedded Interoperability Engineering																																																
	Mission Capability Systems Engineering																																																

2013OSD - 0603563N - 3161

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603563N: <i>Ship Concept Advanced Design</i>	<b>PROJECT</b> 3161: <i>NAVSEA Tech Authority</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3161</b>				
Platform Concept Advanced Development	1	2011	4	2017
Platform Design and Certification Tools/Engineering and Tech Data Exchange Development	1	2011	4	2017
Ship Systems Engineering/Modular Ship Systems Development	1	2011	4	2017
High Speed Ships and Craft Engineering	1	2011	4	2017
Alternative Power Systems Engineering	1	2011	4	2017
Embedded Interoperability Engineering	1	2011	4	2017
Mission Capability Systems Engineering	1	2011	4	2017

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	10.087	22.210	13.710	-	13.710	14.112	6.717	-	12.450	Continuing	Continuing
0408: <i>Ship Development (ADV)</i>	0.435	-	-	-	-	-	-	-	-	0.000	0.435
0409: <i>DDG-51 Flt III Concept Development</i>	8.300	5.704	13.710	-	13.710	14.112	6.717	-	-	0.000	48.543
2474: <i>LSD Design &amp; Total Ship Integration</i>	-	6.588	-	-	-	-	-	-	12.450	Continuing	Continuing
3226: <i>Green Water Craft</i>	1.352	-	-	-	-	-	-	-	-	0.000	1.352
3261: <i>TAGOS Design &amp; Total Ship Integration</i>	-	9.918	-	-	-	-	-	-	-	0.000	9.918

**A. Mission Description and Budget Item Justification**

0408 - SURFTECH - Ship Development project supports the evaluation of advanced and alternative technologies through the Surface Ship Technology (SURFTECH) process for suitability for meeting total ship concepts capability needs.

- OCEAN CLASS AGOR - FY10 Ship Preliminary Design and Feasibility Studies to support procurement of two AGOR ocean Class vessels in FY11 and FY12.

- LCC Class Expected Service-life Assessments (ESA) - Assessments of the LCC 19 and LCC 20 will be conducted to determine life extensions.

0409 - DDG 51 FLT III Concept Development - Develop Preliminary Analysis, Testing, and Design for introduction of DDG 51 FLT III in FY16.

2474 - LSD(X) is expected to functionally replace LSD 41 class (8 ships) and LSD 49 class (4 ships) for embark, transport, control, insert, sustainment, and extract of Marine Air-Ground Task Force elements and supporting forces by helicopters, landing craft, and amphibious vehicles. Efforts are required to identify viable alternatives, including examining a reduced cost variant of LPD 17 Class. Efforts include ship concept studies, the Analysis of Alternatives (AoA), all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), and Preliminary/Contract Design (PD/CD). Previously LSD(X) efforts, in FY10 and FY11, were budgeted in PE 0604311N.

3226 - Green Water Craft will provide maritime security, stability operations, and increased maritime domain awareness in compliance with Global Maritime Security objectives and in direct support of Global Fleet Stations (GFS). Funding will provide for craft feasibility and sizing study and subsystem mockups in support of initial craft production.

3261 - Preliminary Ship Design and Contract efforts to support procurement of a T-AGOS Class vessel.

T-AGOS ocean surveillance ships have a single mission to gather underwater acoustical data and operate to support the anti-submarine warfare mission.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>
---	--

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	1.796	22.213	26.522	-	26.522
Current President's Budget	10.087	22.210	13.710	-	13.710
Total Adjustments	8.291	-0.003	-12.812	-	-12.812
• Congressional General Reductions	-	-0.003			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.300	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-12.731	-	-12.731
• Rate/Misc Adjustments	-	-	-0.081	-	-0.081
• Congressional General Reductions Adjustments	-0.009	-	-	-	-

**Change Summary Explanation**

Schedule: Reduced FY 13 LSD Design and Total Ship Integration funding based on delay in recapitalizing LSD(X). Added FY 11 funding received as part of the 2011 OMNIBUS reprogramming action to start DDG 51 flight III concept development efforts.



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 0408: <i>Ship Development (ADV)</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0408: <i>Ship Development (ADV)</i>	0.435	-	-	-	-	-	-	-	-	0.000	0.435
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This project unit supports three efforts.

**SURFTECH** - The evaluation of advanced and alternative technologies through the Surface Ship Technology (SURFTECH) process for examining suitability for meeting total ship concepts capability needs. The objective of this project is to provide decision makers with feasible, affordable alternatives to be selected for further development. In support of surface ship advanced technology development and transformation, the surface ship community has instituted a technology evaluation process to coordinate, identify, prioritize, and integrate technology insertion and development efforts and assist RDT&E community efforts to initiate appropriate technology development. The current acquisition guidelines require the development of critical technologies after Milestone A. If significant gap analysis, planning, and early development efforts are not conducted in parallel with Concept Development the Navy will not be able to provide broad, cross-platform direction to surface navy development efforts in an effective manner and will not effectively leverage limited resources to quicken the pace of both development and transition of critical mission technologies for timely acquisition.

**AGOR OCEAN** - Funding supports the acquisition of general purpose research vessels which will conduct science, educational and engineering operations in all oceans, and will be operated by the University Oceanographic Laboratory System (UNOLS).

LCC Class ESA of the LCC 19 & 20 will be conducted to determine life extensions.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> SURFTECH	0.435	-	-
<b>Articles:</b>	0		
<b>FY 2011 Accomplishments:</b> Continued identification, prioritization, and integration of technology insertion and development efforts and assist the RDT&E community efforts to initiate appropriate technology development. SURFTECH will provide continuous analysis of and feedback to ongoing technology development efforts to ensure project relevance and timely transition to meet acquisition schedules, which will be documented in the Technology Plan.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.435	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 0408: <i>Ship Development (ADV)</i>
---	--	---

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• SCN/5087: <i>Oceanographic Ships</i>	88.561	89.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	177.561

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

NONE

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 0409: <i>DDG-51 Flt III Concept Development</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0409: <i>DDG-51 Flt III Concept Development</i>	8.300	5.704	13.710	-	13.710	14.112	6.717	-	-	0.000	48.543
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

DDG 51 FLT III Concept Development study - Funding is provided to evaluate design options associated with FLT III. Ship concepts were developed to determine cost and feasibility. The concepts were variants of the DDG 51 Flight IIA design, and included incorporation of the Air and Missile Defense Radar (AMDR).

DDG 51 FLT III Preliminary Design - Funding is provided beginning in FY 2012 for preliminary design efforts associated with introduction of Flight III in FY16. The current plan will support the Finite Element Analysis (FEA) of the Deckhouse Structure, EMX Analysis, which will include Electromagnetic Signatures, Electromagnetic Interference (EMI), Electromagnetic Pulse (EMP), and Radiation Hazard. It will also include Electrical Power capability increase and Distribution analysis, Cooling Systems analysis, Topside Signature testing, and Weight and Stability analysis and life cycle margin improvement.

DDG 51 FLT III Contract Design - Funding is provided beginning in FY 2013 to develop the results from Preliminary Design to produce a technical package. This phase will develop contract drawings and specifications for the Detail Design and Construction contract.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Proj:0409 DDG-51 Flt III Concept Development	8.300	5.704	13.710
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
FY11 Funding received as part of the 2011 OMNIBUS reprogramming action. The increase of \$8.3M will fund completion of Concept Development to evaluate design options associated with FLT III. The concepts are variants of FLT IIA design, and include incorporation of Air and Missile Defense Radar (AMDR).			
<b>FY 2012 Plans:</b>			
Begin Preliminary Design efforts to reflect Flight III impacts on DDG 51 Class ships, to include superstructure structural modifications, air conditioning plant upgrades, and additional Ship Service Electrical Power increase.			
<b>FY 2013 Plans:</b>			
Continue Preliminary Design efforts. Define a complete engineering description of an integrated DDG 51 Flight III ship system and provide budget-quality cost estimates. Complete trade studies to select subsystems. Perform analysis to mitigate topside interference and radiation hazards. Develop ship arrangements to accommodate Flight III changes to DDG 51. Perform calculations to ensure adequate power and cooling capacity and hull strength. Identify Government Furnished Equipment,			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 0409: <i>DDG-51 Flt III Concept Development</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Government Furnished Information, and Class Standard Equipment. Perform advanced engineering for Flight III machinery and control system modifications required for the Land Based Engineering Site (LBES) in Philadelphia, PA.			
Begin Contract Design efforts. Further develop the results from Preliminary Design to produce a biddable technical package . Develop contract drawings and specifications for the Detail Design and Construction contract. Establish Government Furnished Equipment, Government Furnished Information, and Class Standard Equipment lists. Support budget quality procurement and Total Ownership Cost estimates.			
<b>Accomplishments/Planned Programs Subtotals</b>	8.300	5.704	13.710

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• SCN/2122: <i>DDG 51 Class</i>	2,900.331	2,081.432	3,514.941	0.000	3,514.941	2,014.297	3,002.049	3,508.440	4,048.090	Continuing	Continuing

**D. Acquisition Strategy**

DDG 51 FLT III - Acquisition Strategy will support production of DDG 51 FLT III.

**E. Performance Metrics**

None

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 0409: <i>DDG-51 Flt III Concept Development</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
DDG 51 FLT III Concept Study	WR	NSWC:Dahlgren, VA	2.504	-		-		-		-	0.000	2.504	
DDG 51 FLT III Concept Study	WR	NSWC:Carderock, MD	2.300	-		-		-		-	0.000	2.300	
DDG 51 FLT III Concept Study	WR	SPAWAR:Charleston, SC	0.260	-		-		-		-	0.000	0.260	
DDG 51 FLT III Concept Study	FFRDC	JHU:Baltimore, MD	0.982	-		-		-		-	0.000	0.982	
DDG 51 FLT III Concept Study	MIPR	CPSD:Columbia, SC	0.500	-		-		-		-	0.000	0.500	
DDG 51 FLT III Concept Study	C/CPAF	BIW:Bath, ME	0.500	-		-		-		-	0.000	0.500	
DDG 51 FLT III Concept Study	WR	NRL:Washington, DC	0.177	-		-		-		-	0.000	0.177	
DDG 51 FLT III Concept Study	C/CPAF	Ingalls:Pascagoula, MS	0.500	-		-		-		-	0.000	0.500	
DDG 51 FLT III Concept Study	C/CPAF	Seaport:Washington, DC	3.278	-		-		-		-	0.000	3.278	
DDG 51 FLT III Concept Study	MIPR	DTIC:Ft. Belvoir, VA	0.225	-		-		-		-	0.000	0.225	
DDG 51 FLT III Concept Study	Various	Various:Washington, DC	3.748	-		-		-		-	0.000	3.748	
DDG 51 FLT III Concept Study	WR	SPAWAR:San Diego, CA	0.226	-		-		-		-	0.000	0.226	
DDG 51 FLT III Concept Study	WR	NAWC:Pax River, MD	0.025	-		-		-		-	0.000	0.025	
DDG 51 FLT III Preliminary Design	WR	NSWC:Carderock, MD	-	1.771	Feb 2012	4.132	Feb 2013	-		4.132	0.448	6.351	
DDG 51 FLT III Preliminary Design	C/CPAF	Seaport:Washington, DC	-	2.277	Feb 2012	4.778	Feb 2013	-		4.778	0.518	7.573	
DDG 51 FLT III Preliminary Design	WR	NSWC:Dahlgren, VA	-	1.086	Feb 2012	2.064	Feb 2013	-		2.064	0.224	3.374	
DDG 51 FLT III Preliminary Design	C/CPAF	BIW:Bath, ME	-	0.285	Feb 2012	0.968	Feb 2013	-		0.968	0.105	1.358	
DDG 51 FLT III Preliminary Design	C/CPAF	Ingalls:Pascagoula, MS	-	0.285	Feb 2012	0.968	Feb 2013	-		0.968	0.105	1.358	
DDG 51 FLT III Contract Design	WR	NSWC:Dahlgren, VA	-	-		0.111	Feb 2013	-		0.111	3.062	3.173	
DDG 51 FLT III Contract Design	WR	NSWC:Carderock, MD	-	-		0.232	Feb 2013	-		0.232	6.098	6.330	



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 0409: <i>DDG-51 Flt III Concept Development</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Proj 0409</b>																												
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Concept Development	■																											
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Preliminary Design					■																							
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Contract Design													■															
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FY13-17 MYP Ship Construction Contract Award													■															
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FY16 Ship Funding Appropriated																					■							

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 0409: <i>DDG-51 Flt III Concept Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0409</b>				
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Concept Development	1	2011	2	2012
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Preliminary Design	3	2012	1	2014
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FLT III Contract Design	4	2013	3	2015
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FY13-17 MYP Ship Construction Contract Award	2	2013	2	2013
DDG-51 FLIGHT III CONCEPT DEVELOPMENT: DDG 51 FY16 Ship Funding Appropriated	1	2016	1	2016



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 2474: <i>LSD Design &amp; Total Ship Integration</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2474: <i>LSD Design &amp; Total Ship Integration</i>	-	6.588	-	-	-	-	-	-	12.450	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

LSD(X) is expected to functionally replace LSD 41 class (8 ships) and LSD 49 class (4 ships) for embark, transport, control, insert, sustainment, and extract of Marine Air-Ground Task Force elements and supporting forces by helicopters, landing craft, and amphibious vehicles. Efforts are required to identify viable alternatives, including examining a reduced cost variant of LPD 17 Class. Efforts include ship concept studies, the Analysis of Alternatives (AoA), all Gate and Milestone (MS) documentation, Capabilities Development Documentation (CDD), and Preliminary/Contract Design (PD/CD). Previously LSD(X) efforts, in FY10 and FY11, were budgeted in PE 0604311N.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> LSD DESIGN/TOTAL SHIP INTEGRATION	-	6.588	-
<b>Articles:</b>		0	
<b>FY 2012 Plans:</b> Complete Initial Capabilities Document (ICD). Conduct ship concept studies and the Analysis of Alternatives (AoA) examining new design alternatives as well as LPD 17 reduced cost, mod-repeat options; prepare required documentation for Materiel Development Decision (MDD) and Gate 2.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	6.588	-

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

N/A

**D. Acquisition Strategy**

Predecisional, expect competition will be part of the acquisition strategy after MS A.

**E. Performance Metrics**

Predecisional, performance metrics will be developed in parallel with the CDD.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 2474: <i>LSD Design &amp; Total Ship Integration</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Design/Systems Integration	C/CPFF	CSC, Alion Science:Washington, DC	-	4.085	Dec 2011	-		-		-	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSWC Carderock:NSWC Beth, MD	-	1.114	Dec 2011	-		-		-	Continuing	Continuing	Continuing
Design/Systems Integration	WR	NSWC Dahlgren:Dahlgren, VA	-	0.304	Dec 2011	-		-		-	Continuing	Continuing	Continuing
Design/Systems Integration	WR	PEO C4I, PEO IWS:Washington, DC	-	1.085	Dec 2011	-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	6.588		-		-		-			
<b>Project Cost Totals</b>			-	6.588		-		-		-			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 2474: <i>LSD Design &amp; Total Ship Integration</i>

Fiscal Year	2011				2012				2013				2014				2015				2016				2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initial Capabilities Document (ICD)					▲																							
Analysis of Alternatives (AoA)							▲		▲																			
Capabilities Development Documentation (CDD)																									▲			
Acquisition Milestones							▲																					▲
Indicative/Preliminary Design/Contract Design																									▲			

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 2474: <i>LSD Design &amp; Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2474</b>				
Initial Capabilities Document (ICD)	1	2011	2	2012
Materiel Development Decision (MDD)	3	2012	3	2012
Analysis of Alternatives (AoA)	3	2012	1	2013
Capabilities Development Documentation (CDD)	1	2017	4	2017
Milestone A	4	2017	4	2017
Indicative/Preliminary Design/Contract Design	1	2017	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>					<b>PROJECT</b>			
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>					3226: <i>Green Water Craft</i>			
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3226: <i>Green Water Craft</i>	1.352	-	-	-	-	-	-	-	-	0.000	1.352
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Green Water Craft which will provide maritime security and stability operations and increased maritime domain awareness in compliance with Global Maritime Security objectives and in direct support of Global Fleet Stations (GFS). Funding will provide for craft feasibility and sizing study and subsystem Mockups in support of initial craft production.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Green Water Craft	1.352	-	-
<b>Articles:</b>	0		
<b>Description:</b> In support of initial craft production, Government and contractor engineering support will conduct craft feasibility and sizing studies to be used to develop Command and Control Prototype System and Craft Prototype Models.			
<b>FY 2011 Accomplishments:</b> Technical Working Group formed and Force Protection Coastal (FP-C) Prototype C4ISR System requirements validated with NECC (Fleet), OPNAV (Sponsor) and SPAWAR (C4 Engineering Agent). Master Equipment List (MEL) developed and purchase of prototype equipment on the MEL initiated. Craft Requirements have been utilized to initiate incremental development of Prototype Modeling (Pilot House and Craft).			
<b>Accomplishments/Planned Programs Subtotals</b>	1.352	-	-

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 3226: <i>Green Water Craft</i>
---	--	--

Fiscal Year	FY11	FY12	FY13	FY14	FY15	FY16	FY17
<b>Milestones</b>							
Green Water Craft Prototype Models Award	△						
Green Water Craft Sizing Study Report		△					
Craft Prototype Models Delivery		△					
Command and Control Prototype and Mockup Delivery		△					

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 3226: <i>Green Water Craft</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3226</b>				
Green Water Craft Prototype Models Award	2	2011	2	2011
Green Water Craft Sizing Study Report	4	2011	4	2011
Craft Prototype Models Delivery	1	2012	1	2012
Command and Control Prototype and Mockup Delivery	1	2012	1	2012



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 3261: <i>TAGOS Design &amp; Total Ship Integration</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3261: <i>TAGOS Design &amp; Total Ship Integration</i>	-	9.918	-	-	-	-	-	-	-	0.000	9.918
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

T-AGOS surveillance ship will provide an operational platform to support the mission of the Integrated Undersea Surveillance Systems (IUSS). An undersea surveillance capability is critical to the maritime strategy by supporting the anti-submarine warfare mission area. Loss of these capabilities would limit the Navy's ability to meet strategic and tactical naval imperatives. This capability will support the Fleet, Joint, and Multi-National forces across the full Range of Military Operations (ROMO) from stability operations and engagement to crisis response and major combat operations.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> T-AGOS Design and Acquisition</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2012 Plans:</b></p> <ul style="list-style-type: none"> <li>- Finalization and approval of the Acquisition Strategy, Test and Evaluation Plan, Systems Engineering Plan, and other planning documentation to support conduct of a Gate 2, Gate 3 and Milestone A.</li> <li>- Conduct of an Indicative Design of the materiel solution selected during the Analysis of Alternatives and development of a risk assessment and cost estimate to support finalization and approval of the Capability Development Document and conduct of Gate 3 and Milestone A.</li> <li>- Post Gate 3 and Milestone A conduct of a Preliminary Design to verify compliance with requirements and establish ship size, external configuration, and the overall allocation of space to various functions, major propulsion, electrical, and mission essential mechanical and C4I system elements. Establishment of the Functional Baseline which is confirmed by conduct of a System Engineering Technical Review for the Functional Baseline.</li> </ul>	-	9.918 0	-
<b>Accomplishments/Planned Programs Subtotals</b>	-	9.918	-

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

N/A

**D. Acquisition Strategy**

TBD

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 3261: <i>TAGOS Design &amp; Total Ship Integration</i>

**E. Performance Metrics**

None



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 3261: <i>TAGOS Design &amp; Total Ship Integration</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Proj 3261</b>																												
T-AGOS Focused Service Level AoA																												
T-AGOS Service Level CDD Development																												
GATE 2/3																												
Milestone A																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603564N: <i>Ship Prel Design &amp; Feasibility Studies</i>	<b>PROJECT</b> 3261: <i>TAGOS Design &amp; Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3261</b>				
T-AGOS Focused Service Level AoA	2	2011	4	2011
T-AGOS Service Level CDD Development	1	2012	2	2012
GATE 2/3	3	2012	3	2012
Milestone A	3	2012	3	2012

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603570N: <i>Advanced Nuclear Power Systems</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	364.644	463.683	249.748	-	249.748	430.986	481.522	486.488	476.765	Continuing	Continuing
1258: <i>Nuclear Technology Development</i>	55.728	59.170	59.945	-	59.945	60.723	61.967	63.242	64.583	Continuing	Continuing
2692: <i>CVN 21 Propulsion Plant Development</i>	66.304	65.808	62.020	-	62.020	57.493	56.469	-	-	0.000	308.094
3219: <i>SBSD Nuclear Technology Development</i>	178.345	285.367	81.817	-	81.817	296.021	360.398	420.770	409.666	Continuing	Continuing
3221: <i>Training Platform Replacement</i>	64.267	51.340	43.875	-	43.875	14.657	0.498	-	-	0.000	174.637
4000: <i>Tactical Energy Investment</i>	-	1.998	2.091	-	2.091	2.092	2.190	2.476	2.516	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	366.509	463.683	515.256	-	515.256
Current President's Budget	364.644	463.683	249.748	-	249.748
Total Adjustments	-1.865	-	-265.508	-	-265.508
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-264.802	-	-264.802
• Rate/Misc Adjustments	-	-	-0.706	-	-0.706
• Congressional General Reductions Adjustments	-1.865	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**  
1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
PE 0603570N: *Advanced Nuclear Power Systems*

Schedule: Not applicable.



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603570N: <i>Advanced Nuclear Power Systems</i>				<b>PROJECT</b> 1258: <i>Nuclear Technology Development</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1258: <i>Nuclear Technology Development</i>	55.728	59.170	59.945	-	59.945	60.723	61.967	63.242	64.583	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Nuclear Technology Development	55.728	59.170	59.945
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	55.728	59.170	59.945

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603570N: <i>Advanced Nuclear Power Systems</i>	<b>PROJECT</b> 2692: <i>CVN 21 Propulsion Plant Development</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2692: <i>CVN 21 Propulsion Plant Development</i>	66.304	65.808	62.020	-	62.020	57.493	56.469	-	-	0.000	308.094
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> CVN 21 Propulsion Plant Development	66.304	65.808	62.020
<b>Articles:</b>	0	0	0
<b>Description:</b> N/A			
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	66.304	65.808	62.020

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• SCN/2001: <i>Carrier Replacement Program</i>	2,615.756	554.798	608.195	0.000	608.195	666.129	2,999.085	1,662.208	2,867.641	14,664.572	26,638.384
• SCN/5300: <i>Completion of PY Shpbldg Progr</i>	0.000	0.000	0.000	0.000	0.000	449.000	362.000	0.000	0.000	0.000	811.000

**D. Acquisition Strategy**

N/A

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603570N: <i>Advanced Nuclear Power Systems</i>	<b>PROJECT</b> 2692: <i>CVN 21 Propulsion Plant Development</i>

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603570N: <i>Advanced Nuclear Power Systems</i>	<b>PROJECT</b> 3219: <i>SBSD Nuclear Technology Development</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3219: <i>SBSD Nuclear Technology Development</i>	178.345	285.367	81.817	-	81.817	296.021	360.398	420.770	409.666	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> SBSD Nuclear Technology Development	178.345	285.367	81.817
<b>Articles:</b>	0	0	0
<b>Description:</b> N/A			
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	178.345	285.367	81.817

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• SCN/1045: <i>SSBN(X)</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	777.793	Continuing	Continuing
• RD TEN/3220: <i>SBSD Advanced Submarine System Development</i>	431.422	781.575	483.095	0.000	483.095	793.523	861.406	1,037.360	708.890	Continuing	Continuing

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603570N: <i>Advanced Nuclear Power Systems</i>	<b>PROJECT</b> 3221: <i>Training Platform Replacement</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3221: <i>Training Platform Replacement</i>	64.267	51.340	43.875	-	43.875	14.657	0.498	-	-	0.000	174.637
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Training Platform Replacement	64.267	51.340	43.875
<b>Articles:</b>	0	0	0
<b>Description:</b> N/A			
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	64.267	51.340	43.875

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• SCN/5092: <i>Moored Training Ship</i>	0.000	131.200	307.300	0.000	307.300	181.900	572.000	82.200	357.400	0.000	1,632.000

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603570N: <i>Advanced Nuclear Power Systems</i>	<b>PROJECT</b> 4000: <i>Tactical Energy Investment</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
4000: <i>Tactical Energy Investment</i>	-	1.998	2.091	-	2.091	2.092	2.190	2.476	2.516	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Tactical Energy Investment	-	1.998	2.091
<b>Articles:</b>		0	0
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	-	1.998	2.091

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603573N: <i>Advanced Surface Machinery Sys</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	5.295	18.239	29.897	-	29.897	35.568	26.350	20.414	20.044	Continuing	Continuing
2471: <i>Integrated Power Systems (IPS)</i>	5.295	18.239	29.897	-	29.897	35.568	26.350	20.414	20.044	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The Electric Ships Office (ESO), PMS-320, is responsible for developing and executing the Next Generation Integrated Power System (NGIPS) Technology Development Roadmap (TDR) and transition plans, as well as providing power system solution alternatives to new and existing platforms. The ESO's efforts are to coordinate the ongoing electric power efforts of the PEOs and Office of Naval Research, establish the technical basis and strategic direction for Naval power system architectures, develop decision making tools, and establish technical standards.

In October 2009, SECNAV outlined a set of specific objectives supporting U.S. Navy energy reform including several aimed at significantly reducing Fleet fuel consumption and improving our energy security posture. The ESO supports the DON Energy Goals by employing an integrated approach to develop and transition more affordable technologies that satisfy increasing shipboard power demands and high operational tempo while improving energy efficiency, reducing fuel consumption, and reducing Total Ownership Cost.

This PE funds the development of specific and future electric surface ship technologies for all future ships, with the focus on integrated power systems, which provide total ship electric power, including electric propulsion, power conversion and distribution, and combat system and mission load interfaces to the electric power system.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603573N: <i>Advanced Surface Machinery Sys</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	5.459	18.249	28.345	-	28.345
Current President's Budget	5.295	18.239	29.897	-	29.897
Total Adjustments	-0.164	-0.010	1.552	-	1.552
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.136	-			
• Program Adjustments	-	-	1.608	-	1.608
• Rate/Misc Adjustments	-	-	-0.056	-	-0.056
• Congressional General Reductions Adjustments	-0.028	-	-	-	-

**Change Summary Explanation**

FY13 increase for DDG 51 Flt III's Air & Missile Defense Radar (AMDR) power interface & reduction for ICAS Installation & Tech Adjustments.



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>				<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2471: <i>Integrated Power Systems (IPS)</i>	5.295	18.239	29.897	-	29.897	35.568	26.350	20.414	20.044	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 supports the Integrated Power Systems (IPS) program. IPS provides total ship electric power, including electric propulsion, and power conversion and distribution. The DDG 1000 will be an electric drive ship with an integrated power architecture. USS MAKIN ISLAND (LHD 8) integrates an electric auxiliary propulsion motor for low speed operations and mechanical drive for higher speed operations. IPS reduces acquisition and operating costs of naval ships and increases military effectiveness. IPS leverages investments in technologies that will be useable by both military and commercial sectors. The IPS project develops and transitions technologies that implement the DON Energy Goals to reduce ship platform consumption of fossil fuels thereby reducing dependence upon foreign petroleum sources and greenhouse gas emissions.

IPS has the potential to revolutionize the design, construction, and operation of U.S. naval ships by using electricity as the primary energy transfer medium aboard ship. The flexibility of electric power transmission allows power generating modules with various power ratings to be connected to propulsion loads and ship service in any arrangement that supports the ship's mission at lowest overall cost. Systems engineering in IPS is focused on increasing the commonality of components used across ship types and in developing modules which will be integral to standardization, zonal system architectures, and generic shipbuilding strategies. The purpose of increased commonality is to reduce the total cost of ship ownership by using common modules composed of standard components and/or standard interfaces.

IPS addresses ship platform program goals through: reduced ship acquisition cost through integration of propulsion and ship's service prime movers; lower ship operational costs resulting from more flexible operating characteristics and more efficient components; reduced ship construction costs by allowing more extensive modular construction of power generation, distribution, and loads; improved ship survivability and reduced vulnerability through increased arrangement flexibility and improved electrical system survivability; reduced manning through improved power management systems and reduced on-board maintenance requirements; improved ship signature characteristics; improved design adaptability to meet future requirements of multiple ship types or missions; integrating power management and protection by fully utilizing the power electronics in the system to perform fault protection as well as power conversion and load management functions; simplified technology insertion which allows new technologies to be installed within IPS much less expensively than presently possible; and, reduced machinery system acquisition costs through utilization of commercially shared technologies and components.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Component & System Development	2.198	12.649	16.952
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>		<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				<b>FY 2011</b>
<p>Component &amp; System Development: Continue to conduct detailed design and prototype fabrication of power conversion equipment for advanced architecture. Continue to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, ship integration, architecture design, ship electric architectures and high power weapons systems requirements, and related efforts. Continue to evaluate emerging technologies for ship applications to determine future feasibility and development requirements. Emerging technologies include fuel cells, high-energy weapons, high power radars, and advanced power electronics.</p> <p><b>FY 2012 Plans:</b>            Component &amp; System Development:            * Continue assessments of Next Generation Integrated Power System (NGIPS) alternate architectures to best meet emerging ship requirements.            * Develop technical and operational concepts for improving shipboard energy management utilizing energy storage modules.            * Continue to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning.            * Continue to evaluate emerging technologies for ship applications to determine future feasibility and development requirements. Emerging technologies include high-energy weapons including rail guns, high power radars including Air and Missile Defense Radar (AMDR), and advanced power electronics.            * Analyze alternatives for supplying power to advanced radars, combat systems, and electric weapons power demands and potential interfaces to develop optimum alternative solutions.            * Determine alternatives for energy management and fuel efficiency improvement, and power system upgrade options for ships in service.            * Continue to develop / modify IPS ship configuration documentation including concepts of operations, system level descriptions, and module performance specifications as necessary to support power system requirements.            * Continue to upgrade ship power system smart product model to support cost / performance tradeoffs of alternative IPS ship configurations and evaluation of emerging electric power system and component technologies.</p> <p>** Task Force Energy Initiative: Complete source selection and award contract(s) for design, build, and test of an Energy Storage Module (ESM).            ** Task Force Energy Initiative: Complete source selection and award contract(s) for design, build, and test of an Advanced Power Generation Module.            ** Task Force Energy Initiative: Perform improvement validation studies and preliminary design concepts for Gas Turbine (GT) Specific Fuel Consumption (SFC) improvement initiatives. The projects include, but are not limited to: Cooling and bleed air modulation systems (High Pressure Compressor (HPC) and High Pressure Turbine (HPT)), HPT blade material improvements, optimized fuel schedule, active turbine rotor clearance controls and inlet/exhaust flow optimization.</p>				<b>FY 2012</b>
				<b>FY 2013</b>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>		<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				<b>FY 2011</b>
<p>** Of the FY12 \$12.5M Task Force Energy Initiative budget, \$12.5M is included in Component &amp; System Development in FY12</p> <p><b>FY 2013 Plans:</b>            Component &amp; System Development            * Continue assessments of NGIPS alternate architectures to best meet emerging ship requirements            * Develop technical and operational concepts for improving shipboard energy management utilizing energy storage modules.            * Continue to improve baseline power system performance by performing analysis, modeling and simulation, life cycle cost analysis, producibility studies, module development, and ship integration studies and planning.            * Continue to evaluate emerging technologies for ship applications to determine future feasibility and development requirements. Emerging technologies include high-energy weapons including rail guns, high power radars including Air and Missile Defense Radar (AMDR), and advanced power electronics.            * Analyze alternatives for supplying power to advanced radars, combat systems, and electric weapons power demands and potential interfaces to develop optimum alternative solutions.            * Determine alternatives for energy management and fuel efficiency improvement, and power system upgrade options for ships in service.            * Continue to develop / modify IPS ship configuration documentation including concepts of operations, system level descriptions, and module performance specifications as necessary to support power system requirements.            * Continue to upgrade ship power system smart product model to support cost / performance tradeoffs of alternative IPS ship configurations and evaluation of emerging electric power system and component technologies.            * Develop DDG-51 Flight III AMDR power interface requirements and open architecture including: ship / radar electrical interface development, specification and solicitation development, interface definition and concept design. Develop and build Functional Equivalent Modules (FEM) in support of DDG-51 Flight III AMDR Power Conversion Modules (PCM).</p> <p>** Task Force Energy Initiative: Continue efforts to design, build, and test an ESM.            ** Task Force Energy Initiative: Continue efforts to design, build, and test an Advanced Power Generation Module.            ** Task Force Energy Initiative: Continue design concepts for each specific fuel consumption initiative. (Cooling and bleed air modulation systems, HPT blade material improvements, optimized fuel schedule, active turbine rotor clearance controls and inlet/exhaust flow optimization). Manufacture prototype hardware required for implementation and testing. Test fit hardware on Navy LM2500 engine for configuration validation.</p> <p>** Of the FY13 \$19.659M Task Force Energy Initiative budget, \$12.359M is included in Component &amp; System Development in FY13.</p>				
<b>Title:</b> Component & System Test				2.947
				2.990
				9.844

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>	<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
---	----------------	----------------	----------------

<b>Articles:</b>	0	0	0
------------------	---	---	---

***FY 2011 Accomplishments:***  
Component & System Test: Continued to conduct land based testing of power conversion equipment at NSWCCD, Philadelphia, PA to mitigate potential risks associated with a fielded IPS system and reduce ship's signature, improve survivability and efficiency by fabricating components, inserting into the IPS test site or an appropriate test platform. Continued to conduct demonstrations to maintain and develop the critical engineering capability and capacity to insert future high power weapon systems (radars, lasers and electromagnetic launch weapons) into DDG-1000, future flights of the DDG 51 class, future amphibious ships, and other ship classes. Continued to conduct demonstrations to show improved performance and potential to reduce combat system costs.

***FY 2012 Plans:***  
Component & System Test:  
\* Continue to conduct land based testing of NGIPS modules in order to increase energy efficiency and fuel savings, improve survivability and enable advanced sensors and weapons (i.e., AMDR, Railgun).  
\* Complete land based testing of a Functional Equivalent (FE) Energy Storage Module (ESM). FE ESM will validate interface requirements, employ an open architecture, and utilize components from multiple sources.  
\* Participate in the At-Sea demonstration of the ESM onboard the Green Fleet demonstration ship in conjunction with the Fleet Readiness Research and Development program.  
\* Take delivery of the ONR developed compact power components, (Bi-direction Power Converter and Multi-Functional Power Converter, and Power Management Controller). Conduct land based testing of compact power components and transition into platform applications per the signed Technology Transition Agreements (TTAs) between ONR and PMS-320.  
\*\* Of the FY12 \$12.5M Task Force Energy Initiative budget, \$0M is included in Component & System Test in FY12.

***FY 2013 Plans:***  
Component & System Test  
\* Continue to conduct land based testing of NGIPS modules in order to increase energy efficiency and fuel savings, improve survivability and enable advanced sensors and weapons (i.e., AMDR, Railgun).  
\* Continue efforts associated with ONR developed compact power components, (Bi-direction Power Converter, Multi-Functional Power Converter, and Power Management Controller) per the signed Technology Transition Agreements (TTAs) between ONR and PMS-320.  
\*\* Task Force Energy Initiative: Conduct full scale engine testing of each prototype hardware system individually and as a complete system to quantify improvement validation. Perform SFC validation testing at Navy test facility at NAVAIR North Island. Acquire test data to assess performance improvement associated with each initiative. Evaluate prototype hardware under test

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>	<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>conditions to assess longevity and serviceability. Determine whether component redesign is required to optimize efficiency gains. Define actual measured SFC benefits versus original projections.                      ** Task Force Energy Initiative: Commence test planning for energy storage module.</p> <p>Of the FY13 \$19.659M Task Force Energy Initiative budget, \$7.3M is included in Component &amp; System Test in FY13.</p>				
<p><b>Title:</b> Platform Integration &amp; Transition</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b>                      Platform Integration &amp; Transition: Continued to develop IPS configurations in support of all future ship programs. Continued to develop / modify IPS ship configuration documentation including concepts of operations, System Level description / Requirements, and module performance specifications as necessary to support power system requirements for the DDG-51 and other future ships. Continued to improve ship power system smart product model to support cost / performance tradeoffs of alternative IPS ship configurations and evaluation of emerging electric power system and component technologies.</p> <p><b>FY 2012 Plans:</b>                      Platform Integration &amp; Transition:                      * Continue to develop IPS configurations in support of future surface ship acquisition programs.                      * Develop alternative power and propulsion solutions for future flights of the DDG 51 Class and near term large amphibious ships.                      * Develop alternative solutions to decrease shipboard energy usage and improve fuel efficiency.</p> <p>Of the FY12 \$12.5M Task Force Energy Initiative budget, \$0M is included in Platform Integration &amp; Transition in FY12.</p> <p><b>FY 2013 Plans:</b>                      Platform Integration &amp; Transition:                      * Continue to develop configurations in support of future surface ship acquisition programs.                      * Develop alternative power and propulsion solutions for future flights of the DDG 51 Class and near term large amphibious ships.                      * Develop alternative solutions to decrease shipboard energy usage and improve fuel efficiency.                      * Conduct efforts to transition compact power components into platform applications.</p> <p>Of the FY13 \$19.659M Task Force Energy Initiative budget, \$0M is included in Platform Integration &amp; Transition in FY13.</p>		0.150 0	2.600 0	3.101 0
<b>Accomplishments/Planned Programs Subtotals</b>		5.295	18.239	29.897

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>	<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>

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

N/A

**D. Acquisition Strategy**

This program develops and transitions higher performance and more affordable electric power systems to both new construction and back fit ship applications using an evolutionary acquisition approach. IPS is included in the DDG 1000 and is a candidate for all other future surface ships.

**E. Performance Metrics**

The Integrated Power System (IPS) project within the Electric Ships Office (ESO) will: execute 100% of the signed Technology Transition Agreements with ONR; complete 100% of the advanced developments currently planned for the Energy Storage Module and Power Generation Module; achieve 10% Specific Fuel Cost (SFC) with 33% increased power for Advanced Power Generation module; mature technology to Technical Readiness Level (TRL) 6 by milestone decisions for ship acquisition programs; and, realize a 5% improvement in gas turbine engine fuel consumption over engine operating profile.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>	<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary HW Development	C/CPFF	Alion Science Corp:Fairfax VA	6.825	0.600	Oct 2011	0.700	Oct 2012	-		0.700	0.000	8.125	
Primary HW Development	C/CPFF	Curtiss-Wright EMD:Pittsburgh, PA	10.750	-	Oct 2011	-		-		-	0.000	10.750	
Primary HW Development	C/CPFF	Various:Various	0.500	1.000	Oct 2011	1.540	Oct 2012	-		1.540	6.700	9.740	
Primary HW Development	WR	NSWCCD-SSES:Phila, PA	28.828	1.249	Oct 2011	2.097	Oct 2012	-		2.097	0.000	32.174	
Primary HW Development	C/CPFF	Syntek:Arlington, VA	0.900	2.000	Oct 2011	2.510	Oct 2012	-		2.510	0.000	5.410	
Primary HW Development	C/CPFF	Bath Iron Works:Bath, ME	0.250	0.100	Oct 2011	0.100	Oct 2012	-		0.100	0.000	0.450	
Primary HW Development	C/CPFF	HII:Pascagoula, MS	0.250	0.100	Oct 2011	0.100	Oct 2012	-		0.100	0.000	0.450	
Primary HW Development	C/CPFF	ESM/ADV PGM TBD:Various	-	7.490	Mar 2012	10.000	Oct 2012	-		10.000	0.000	17.490	
Primary HW Development	C/BOA	GE:Cincinnati, OH	-	2.700	Oct 2011	2.550	Oct 2012	-		2.550	0.000	5.250	
<b>Subtotal</b>			48.303	15.239		19.597		-		19.597	6.700	89.839	

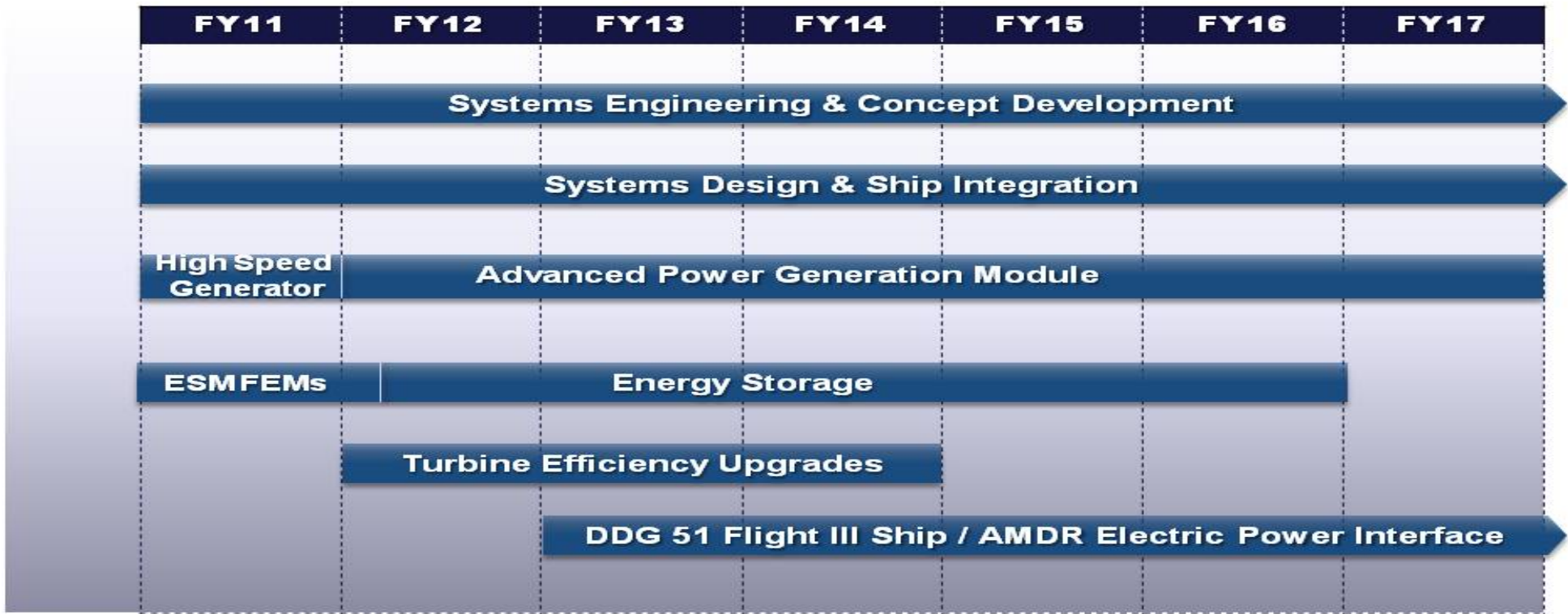
<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	NSWCCD-SSES:Phila, PA	24.040	1.400	Oct 2011	2.800	Oct 2012	-		2.800	0.000	28.240	
Developmental Test & Evaluation	C/CPFF	Compact Power:TBD	-	1.600	Oct 2011	-		-		-	0.000	1.600	
Developmental Test & Evaluation	C/BOA	GE:Cincinnati, OH	-	-		7.000	Oct 2012	-		7.000	0.000	7.000	
<b>Subtotal</b>			24.040	3.000		9.800		-		9.800	0.000	36.840	





**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>	<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603573N: <i>Advanced Surface Machinery Sys</i>	<b>PROJECT</b> 2471: <i>Integrated Power Systems (IPS)</i>
---	--	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Proj 2471</i></b>				
System Engineering & Concept Development	1	2011	4	2017
System Design & Ship Integration	1	2011	4	2017
Advanced Power Generation	1	2011	4	2017
Energy Storage	1	2011	4	2016
Turbine Efficiency Upgrades	1	2012	4	2014
DDG51 Flight III Ship AMDR Electrical Interface	1	2013	4	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603576N: (U)CHALK EAGLE
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	447.620	582.025	509.988	-	509.988	522.242	433.203	347.452	121.296	Continuing	Continuing
1578: <i>Chalk Eagle</i>	447.620	582.025	509.988	-	509.988	522.242	433.203	347.452	121.296	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	447.804	584.159	503.790	-	503.790
Current President's Budget	447.620	582.025	509.988	-	509.988
Total Adjustments	-0.184	-2.134	6.198	-	6.198
• Congressional General Reductions	-	-2.134			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.999	-			
• SBIR/STTR Transfer	-6.446	-			
• Program Adjustments	-	-	6.049	-	6.049
• Rate/Misc Adjustments	-	-	0.149	-	0.149
• Congressional General Reductions Adjustments	-3.737	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603576N: (U)CHALK EAGLE	<b>PROJECT</b> 1578: <i>Chalk Eagle</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1578: <i>Chalk Eagle</i>	447.620	582.025	509.988	-	509.988	522.242	433.203	347.452	121.296	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Chalk Eagle	447.620	582.025	509.988
<b>Articles:</b>	0	0	0
<b>Description:</b> N/A			
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	447.620	582.025	509.988

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	191.613	292.665	429.420	-	429.420	434.955	258.825	138.738	126.357	Continuing	Continuing
3096: <i>Littoral Combat Ship</i>	52.232	100.157	223.681	-	223.681	242.700	115.970	39.624	40.323	Continuing	Continuing
3129: <i>LCS Mission Package Development</i>	80.654	137.596	195.824	-	195.824	187.327	142.855	99.114	86.034	Continuing	Continuing
4018: <i>Littoral Combat Ship Construction</i>	46.788	44.912	9.915	-	9.915	4.928	-	-	-	0.000	106.543
9999: <i>Congressional Adds</i>	11.939	10.000	-	-	-	-	-	-	-	0.000	21.939

**A. Mission Description and Budget Item Justification**

This Program Element (PE) provides funds for detailed design, development, construction, integration, and testing of the Littoral Combat Ship (LCS). LCS is a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and assure naval and joint force access into contested littoral regions. It uses open-systems architecture design, modular weapons, and sensor systems, and a variety of manned and unmanned vehicles to expand the battle space and project offensive power into the littoral.

LCS operates with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including littoral anti-submarine warfare (ASW), surface warfare (SUW) and mine countermeasures (MCM). LCS also possesses inherent capabilities, regardless of the mission package installed, including Intelligence, Surveillance, Reconnaissance (ISR), Homeland Defense, Maritime Interdiction/Interception Operations (MIO), Anti-Terrorism/Force Protection (AT/FP), air self-defense, joint littoral mobility, Special Operating Forces (SOF), and logistic support for movement of personnel and supplies. This relatively small, high-speed surface combatant complements the U.S. Navy's Surface Fleet by operating in environments where it is less desirable to employ larger, multi-mission ships. LCS can deploy independently to overseas littoral regions, remain on station for extended periods of time either with a battle group or through a forward-basing arrangement and is capable of underway replenishment. LCS will operate with Carrier Strike Groups, Surface Action Groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, LCS can operate cooperatively with the U.S. Coast Guard and Allies.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>
---	--

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	226.288	286.784	327.014	-	327.014
Current President's Budget	191.613	292.665	429.420	-	429.420
Total Adjustments	-34.675	5.881	102.406	-	102.406
• Congressional General Reductions	-	-0.119			
• Congressional Directed Reductions	-	-4.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.000	-			
• SBIR/STTR Transfer	-1.980	-			
• Program Adjustments	-	-	104.479	-	104.479
• Rate/Misc Adjustments	-	-	-2.073	-	-2.073
• Congressional General Reductions Adjustments	-0.995	-	-	-	-
• Congressional Directed Reductions Adjustments	-48.700	-	-	-	-
• Congressional Add Adjustments	12.000	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *MIW Modules Prog - Cong*

Congressional Add: *LCS MM SBIR (Cong)*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	<b>FY 2011</b>	<b>FY 2012</b>
	11.939	-
	-	10.000
Congressional Add Subtotals for Project: 9999	11.939	10.000
Congressional Add Totals for all Projects	11.939	10.000

**Change Summary Explanation**

FY 2013 increase for seaframe and mission package included the following: Dual variant support for testing, training software development, training hardware procurement, and post-delivery test and trials; development and testing for continuous Active Sonar/Variable Depth Sonar for ASW mission packages; procurement of 30mm long rod ammunition for LCS Developmental Testing/Operational Testing (DT/OT) and testing rounds; transition and integration of Surface Mine Countermeasure Unmanned Undersea Vehicle (UUV) into the LCS MCM mission package; continued development of Increment 1 Griffin missile; and the development, integration & testing of an extended range, autonomous Increment II Surface-to-Surface Missile Module (SSMM).

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>
---	--	---

COST (\$ in Millions)	FY 2011		FY 2012		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		Cost To Complete	Total Cost
	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost					
3096: <i>Littoral Combat Ship</i>	52.232	100.157	223.681	-	223.681	242.700	115.970	39.624	40.323	Continuing	Continuing					
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0							

**A. Mission Description and Budget Item Justification**

The RDT&E portion of the LCS Program is comprised of design and development efforts required to deliver the Flight 0 Class Ships, including integration with modular MCM, ASW, and SUW mission packages, and construction of the first two Flight 0 Class Ships, the USS Freedom (LCS 1) delivered September 2008 and the USS Independence (LCS 2) delivered December 2009. It includes the design and development effort required to support the introduction and deployment of a Flight 0+ baseline for the ships awarded in FY09 with the incorporation of lessons learned from the design and construction of USS Freedom (LCS 1) and USS Independence (LCS 2), including improved waterjets and a waterjet tunnel extension on the Lockheed Martin (LM) LCS Design. Additionally, it includes design and development efforts required to support the design baseline for the six year block buy in FY10-15. This baseline will include lessons learned from the LCS 1 through LCS 4.

The LCS design and development phases include platform design and development, experimentation and ship system design and integration, hull platform testing, development of a Technical Data Package (TDP), total ship system engineering and integration, and planning and conduct of system testing, including procurement of ordnance in support of testing.

The R&D portion of LCS funding is also comprised of formal Developmental and Operational Assessment testing of the LCS Ships and Mission Packages. Test and Evaluation (T&E) will concentrate on verifying integration and interoperability of employed technologies and systems in the LCS seaframe designs and modular mission packages to achieve the mission capabilities and performance requirements as defined in the LCS Program's Flight 0 and Flight 0+ Capabilities Development Documents (CDD). T&E functions will include the evaluation of Critical Technical Parameters (CTP), Measures of Effectiveness (MOE), Measures of Suitability (MOS), and Key Performance Parameters (KPP) for the core seaframe and the focused missions.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> LCS Program Management	2.320	2.311	1.525
<b>Articles:</b>	0	0	0
<b>Description:</b> Provides for overall LCS Program operations including technical, production, and logistics oversight, and acquisition, contract, Earned Value (EV), risk, science and technology, and financial management.			
<b>FY 2011 Accomplishments:</b>			
Continued contract administration for all Flight 0+ ships. Revised the Acquisition Strategy to support the Navy decision to continue with both designs. Completed Milestone B documents, reflecting the revised acquisition strategy, including all required DOD and Service reviews of products and completed preparations for a Milestone B Defense Acquisition Board. Developed a total			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>		<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
program acquisition and contracting plan to support future year planning. Continued financial management and performance of USS Freedom and USS Independence formal Developmental and Operational Testing. Prepared for Milestone C.					
<b>FY 2012 Plans:</b> Complete contract administration for all Flight 0+ ships. Continue to provide LCS program oversight for financial, logistics, technical and production efforts. Continue financial management and performance of USS Freedom and USS Independence formal Development and Operational Testing. Continue efforts for Milestone C and maintain Milestone documentation.					
<b>FY 2013 Plans:</b> Continue to provide LCS program oversight for financial, logistics, technical and production efforts. Continue financial management and performance of Flight 0 and Flight 0+ formal Development and Operational Testing. Provide contract administration for all LCS contract Basic Ordering Agreements (BOAs).					
<b>Title:</b> LCS System-of-Systems Development, Engineering & Experimentation		<b>Articles:</b>	10.294	15.519	35.705
<b>Description:</b> Provides for LCS Program systems engineering in support of Flight 0, Flight 0+, and the new FY10 Block Buy baseline design, development, certification, and production (including ship system design and integration); combat system and C4I design, integration, and test; aviation (manned and unmanned) integration; modular Mine Countermeasure (MCM), Anti-Submarine Warfare (ASW), and Surface Warfare (SUW) mission package integration; logistics product development; and various systems engineering activities required to perform risk analyses of new design and production technology concepts.			0	0	0
<b>FY 2011 Accomplishments:</b> Flight 0 baseline: Conducted systems engineering to develop solutions for emergent issues during USS Freedom Post Delivery tests and trials including Seaframe Developmental Testing (DT) and Post Shakedown Availability (PSA). Managed integration of Surface Warfare Mission Package (SUW MP) on USS Freedom and Mine Countermeasures Mission Package (MCM MP) on USS Independence and conducted Independent Verification and Validation (IV&V) and systems engineering for emergent integration issues.					
Flight 0+ and FY10 Block Buy baselines: Conducted systems engineering to develop solutions for Flight 0+ and FY10 baselines for design/production issues highlighted during USS Freedom and USS Independence testing and LCS 3 and LCS 4 production. Initiatives pursued included combat system integration, off-board vehicle communications, and watercraft launch, recovery and handling. Conducted systems engineering efforts in support of multiple certification requirements for the FY10 Block Buy baseline. Continued management of both baselines to ensure a seamless transition into production.					
<b>FY 2012 Plans:</b>					



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Flight 0 baseline: Continue systems engineering efforts to develop solutions for emergent issues experienced during USS Freedom and USS Independence Post Delivery tests and trials including coordination, inspections, and certifications for Seaframe Developmental and Operational Testing (DT/OT), USS Freedom Final Contract Trials (FCT), and PSA. Manage integration of SUW MP on USS Freedom and MCM MP on USS Independence and conduct IV&amp;V and systems engineering for emergent integration issues.</p> <p>Flight 0+ and FY10 Block Buy baselines: Continue systems engineering efforts to develop solutions for Flight 0+ and FY10 baselines for design and production issues highlighted during USS Freedom and USS Independence testing for LCS ships currently in production. Conduct systems engineering efforts in support of multiple certifications requirements for the FY10 Block Buy baseline. Continue management of both baselines to ensure a seamless transition into production.</p> <p><b>FY 2013 Plans:</b> Continue systems engineering efforts to develop solutions for FY10 baselines for design and production challenges highlighted in USS Freedom and USS Independence testing for LCS ships currently in production. Continue post-delivery systems engineering support throughout testing and industrial availabilities for USS Freedom and USS Independence, including Seaframe DT, USS Independence FCT, and PSA. Manage the integration of Mission Package components and conduct Independent Verification and Validation (IV&amp;V) for implementation. Conduct systems engineering special studies and analyses, as necessary. Continue management and transition into production of the Flight 0+ and FY10 Block Buy technical baselines including review, approval, and implementation of Engineering Change Proposals (ECPs). Conduct systems engineering efforts in support of multiple certifications issues for the new baseline. Continue management of both baselines' transition into production.</p>				
<p><b>Title:</b> LCS Total System Training Architecture</p> <p><b>Description:</b> LCS is minimally manned, and the small crew size, combined with LCS's complex mission, does not allow adequate time for shipboard "on the job" training to achieve LCS operational availability. Consequently, LCS uses a Train-to-Qualify (T2Q) training process in an off-ship/shore-based virtual ship trainer environment, focused on tactical operations training. The LCS shore-based training capability satisfies individual, unit, team, and force training to meet T2Q Capability Development Document (CDD) requirements. Leverages DDG 1000 Total Ship Training System efforts, as well as trainers previously procured for LCS.</p> <p><b>FY 2011 Accomplishments:</b></p>		16.538	25.641	128.269
		<b>Articles:</b> 0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>
---	--	---

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

	FY 2011	FY 2012	FY 2013
<p>Completed enhancements to present USS Freedom and USS Independence configurations. Provided crew training to meet T2Q requirements and provided a shore training facility with Navy Continuous Training Environment (NCTE) capability for multiple crews to complete required battle group training.</p> <p><b>FY 2012 Plans:</b> Initiate development of the Virtual Ship Software environment for use on future LCS Trainers. Develop training software in order to meet T2Q CDD Key Performance Parameters (KPP). Complete trainer curriculum at Surface Warfare Officer School (SWOS). Take ownership of Office of Naval Research (ONR) sponsored software for the Virtual Maintenance Performance Aide (VMPA) Training environment for continued development of the maintenance and engineering training architecture.</p> <p>Installation of Secret Internet Protocol, Routed (SIPR) and Non-Secure Internet Protocol Router (NIPR) distance support applications, and hardware for LCS reach back to the Class Squadron/Maritime Support Detachment (CLASSRON/MSD). Includes SIPR distance support development, testing, fielding, and training, along with hardware and software. Support classified applications such as Force Protection requirements, Casualty Reports (CASREPs), and sensitive medical information. Includes development, testing, and fielding for support of on-board operations, maintenance, and crew administration and training applications and tools. Provide for the development of the software, procurement of shore hardware, integration and testing of the tools, development of the training packages, and delivery to the ships.</p> <p><b>FY 2013 Plans:</b> Continue development of Virtual Ship Software environment focused on tactical operations training for use on LCS Trainers. Provide contracting, engineering, and Navy oversight support to deliver Virtual Reality (VR) software components and their associated operations courseware to replicate essential shipboard systems. Continue to develop training software in order to meet T2Q CDD KPP. Continue to fund the VMPA Training environment for continued development of the training architecture for maintenance and engineering. Integrate the new simulator components with the existing trainers, and begin the detailed planning for installation and integration into the LCS Training Facility in San Diego.</p> <p>The following VR ship components and associated courseware will be developed in the VR Ship Program:</p> <ul style="list-style-type: none"> <li>- Waterjets Basic Operations/Control System</li> <li>- Seaframe and Maintenance - Deck</li> <li>- Seaframe and Maintenance - Engineering</li> <li>- Propulsion Diesel School</li> <li>- Engineering Plant Technology - Entry Point Training</li> <li>- Seaframe Electronics/Control Operations</li> <li>- Seaframe Electronics/Control Maintenance</li> </ul>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>		<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<ul style="list-style-type: none"> <li>- Class MT30 Gas Turbine (Freedom Variant only)</li> <li>- Class Gas Turbine Differences (Independence Variant only)</li> <li>- Twin-Boom Expandable Crane (TBEC) Ops and Maintenance (Independence Variant only)</li> <li>- Engineering Administrative Programs</li> <li>- Total Ship Computing Environment (TSCE)</li> </ul>				
<p><b>Title:</b> LCS Test &amp; Evaluation</p> <p align="right"><b>Articles:</b></p>		23.080 0	56.686 0	58.182 0
<p><b>Description:</b> Execute formal LCS Developmental Testing and Operational Testing (DT/OT), including Live Fire Test and Evaluation (LFT&amp;E), and procurement of T&amp;E Ordnance. Execute DT and C4I design, integration, and test; aviation (manned and unmanned) integration; modular Mine Countermeasure (MCM), Anti-Submarine Warfare (ASW), and Surface Warfare (SUW) mission package integration; logistics product development; and various systems engineering activities required to perform risk analyses of new design and production technology concepts.</p> <p><b>FY 2011 Accomplishments:</b> Flight 0 baseline: Continued Seaframe testing on USS Freedom and USS Independence, including signature trials, air warfare and surface warfare firing events, aviation integration (manned and unmanned systems), and selected sea keeping trials. Conducted detailed Seaframe DT and SUW Mission Package (MP) integration on USS Freedom and MCM MP on USS Independence, and conducted analysis efforts for emergent integration issues. Developed solutions for emergent issues during USS Freedom and USS Independence Post Delivery tests and trials including Seaframe DT and Post Shakedown Availability (PSA). Updated the LCS Test and Evaluation Master Plan (TEMP) to reflect revised Acquisition Strategy and Program schedule.</p> <p>Flight 0+ and FY10 Block Buy baselines: Planned for Flight 0+ and FY10 baselines for design/production issues highlighted in USS Freedom and USS Independence testing. Analysis included combat system integration, off-board vehicle communications, and watercraft launch, recovery, and handling. Conducted systems engineering efforts in support of multiple certification issues for new baseline. Continued management of both baselines to transition into production.</p> <p><b>FY 2012 Plans:</b> Flight 0 baseline: Continue Seaframe DT/OT on the USS Independence. Conduct initial SUW DT with USS Freedom and complete all integration testing of the MCM MP with USS Independence. Manage integration with SUW MP on USS Freedom and MCM MP on USS Independence. Execute planned surrogate testing to include blast and fire tests of individual panels and components to support</p>				

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
LFT&E assessment. Develop solutions to emergent issues as a result of USS Freedom FCT and USS Freedom and USS Independence PSA.			
Flight 0+ and FY10 Block Buy baselines: Begin advance DT/OT planning for the MCM MP on the LCS 3. Conduct testing to validate that the solutions for emergent issues identified on USS Freedom and USS Independence are integrated into the LCS 3 and LCS 4. Begin planning surrogate testing for the Independence Variant aluminum hull in the areas of multi-hull blast and fire testing and whipping tests to support LFT&E requirements.			
<b>FY 2013 Plans:</b> Flight 0 baseline: Conduct SUW DT, MCM DT, TECHEVAL, and IOT&E for USS Freedom. Conduct Seaframe DT, MCM MP DT, FCT, and PSA for USS Independence. Develop solutions for emergent issues identified during Post Delivery test and trials.			
Flight 0+ baseline: Conduct DT/OT for the MCM MP on LCS 3, testing the solutions highlighted on USS Freedom and USS Independence, and supporting the integration of these capabilities into their respective Seaframes. Begin planning for the Total Ship Survivability Trial (TSST) for the LCS 3 and LCS 4. Begin advance planning for Full Ship Shock Trials (FSST) on the LCS 5 and LCS 6. Continue planning for Aluminum Compartmentalization and Whipping Tests on the Independence Variant to support LFT&E requirements.			
<b>Accomplishments/Planned Programs Subtotals</b>	52.232	100.157	223.681

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

<b>Line Item</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 2127: <i>Littoral Combat Ship</i>	1,241.477	1,755.093	1,784.959	0.000	1,784.959	1,819.575	1,881.485	1,012.988	896.027	17,562.449	30,388.374
• 1600 : <i>LCS Modules</i>	41.145	63.448	31.319	0.000	31.319	46.037	30.979	14.729	18.595	2,407.630	2,734.269
• 0443: <i>Aircraft Procurement, Navy</i>	58.732	191.986	124.573	0.000	124.573	129.003	114.750	124.510	94.990	Continuing	Continuing
• 5110: <i>Outfitting/Post Delivery</i>	4.678	49.013	60.053	0.000	60.053	76.393	132.715	133.787	209.986	663.574	1,332.956
• 1320: <i>LCS Training</i>	0.000	20.709	20.640	0.000	20.640	32.924	16.513	17.983	23.191	Continuing	Continuing
• 0944: <i>LCS Class Support Equipment</i>	0.000	0.000	19.865	0.000	19.865	21.278	35.469	36.640	60.800	Continuing	Continuing
• 0981: <i>Items Under \$5M</i>	8.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.703
• 1601: <i>MCM Mission Module Equipment</i>	0.000	0.000	38.932	0.000	38.932	68.926	185.056	219.850	219.852	Continuing	Continuing

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>
---	--	---

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 1602: <i>ASW Mission Module Equipment</i>	0.000	0.000	0.000	0.000	0.000	0.000	3.436	23.612	44.754	Continuing	Continuing
• 1603: <i>SUW Mission Module Equipment</i>	0.000	0.000	32.897	0.000	32.897	37.260	40.098	46.342	67.630	Continuing	Continuing
• 4221: <i>LCS Module Weapons</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.100	Continuing	Continuing

**D. Acquisition Strategy**

The LCS program takes an evolutionary approach to acquisition that emphasizes competition as a key to achieving affordability. Initially, two industry teams competed against each other with two distinctly different LCS designs. The decision produced two flights with a vessel from each design: Flight 0 (LCS 1 and LCS 2); and Flight 0+ (LCS 3 and LCS 4). The Flight 0+ baseline incorporates lessons learned from the design, construction, and testing of the Flight 0 ships. The Navy conducted a limited competition amongst the existing LCS industry teams or team participants for the award of a contract for the construction of a block buy of up to ten (10) LCS Flight 0+ Class ships, with an objective of competitively awarding a single contract to a single industry team.

By Acquisition Decision Memorandum of December 23, 2010, the USD (AT&L) authorized execution of an alternative acquisition strategy for the FY 2010 through FY 2015 procurement of 20 seaframes through two ten-ship block buy contracts. On December 29, 2010, the Navy awarded two contracts for block buys of up to ten ships, beginning with the award to each contractor of one FY 2010 ship and associated non-recurring engineering, the development of the Technical Data Package (TDP), core class services, and associated data. This will be followed with the contractual funding of one ship to each contractor in FY 2011 followed by two ships each funded in FY 2012 through FY 2015.

**E. Performance Metrics**

The LCS Program achieved Milestone A and Program Initiation in May 2004, and underwent a Milestone A update in FY09. Milestone B was achieved in February 2011. Milestone C is planned for mid-2012.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
LCS 1 & 2 Shore Trainers	C/CPAF	LM, BIW:Various	47.595	8.941	Feb 2012	50.939	Oct 2012	-		50.939	Continuing	Continuing	Continuing
Training Development - Industry	C/FP	TBD:Various	-	8.800	Feb 2012	54.635	Oct 2012	-		54.635	Continuing	Continuing	Continuing
Training Development	WR	NAWC TSD:San Diego, CA	-	3.000	Feb 2012	20.095	Oct 2012	-		20.095	Continuing	Continuing	Continuing
Class Design Services	SS/CPAF	LM, GD:Various	48.340	-		-		-		-	Continuing	Continuing	Continuing
Final Design (Flight 0)	C/CPAF	LM, BIW:Various	175.263	-		-		-		-	Continuing	Continuing	Continuing
Flight 0 C4I	WR	PEO C4I:Various	5.506	-		-		-		-	Continuing	Continuing	Continuing
SH-60B Datalink	C/CPAF	LM, BIW:Various	2.435	-		-		-		-	Continuing	Continuing	Continuing
Distance Support	WR	NAWC TSD:Sand Diego, CA	-	4.900	Feb 2012	2.600	Oct 2012	-		2.600	Continuing	Continuing	Continuing
<b>Subtotal</b>			279.139	25.641		128.269		-		128.269			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Government Engineering Support	WR	NSWC/DD:Dahlgren, VA	41.906	4.500	Oct 2011	8.623	Nov 2012	-		8.623	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/PC:Panama City, FL	22.892	0.250	Feb 2012	2.540	Nov 2012	-		2.540	Continuing	Continuing	Continuing
Government Engineering Support	WR	NUWC:Newport, RI	8.961	0.100	Oct 2011	0.250	Oct 2012	-		0.250	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWC AD:Pax River, VA	18.015	1.369	Feb 2012	3.149	Oct 2012	-		3.149	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/CR:Crane, IN	15.951	0.100	Feb 2012	0.725	Nov 2012	-		0.725	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC/SSES:Philadelphia, PA	45.996	4.000	Oct 2011	8.500	Nov 2012	-		8.500	Continuing	Continuing	Continuing
Government Engineering Support	Various	Government Activities:Various	28.228	2.600	Oct 2011	6.070	Dec 2012	-		6.070	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>
---	--	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Contractor Engineering Support	C/CPAF	Alion/CSC:Arlington, VA	39.490	2.500	Feb 2012	5.623	Jan 2013	-		5.623	Continuing	Continuing	Continuing
Contractor Engineering Support	C/CPAF	Various:Various	18.148	0.100	Feb 2012	0.225	Jan 2013	-		0.225	Continuing	Continuing	Continuing
<b>Subtotal</b>			239.587	15.519		35.705		-		35.705			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Test & Evaluation	C/CPAF	Alion/CSC:Arlington, VA	11.490	5.800	Feb 2012	7.210	Dec 2012	-		7.210	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/PHD:Port Hueneme, CA	24.771	6.500	Oct 2011	6.370	Nov 2012	-		6.370	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/SSES:Philadelphia, PA	30.467	6.500	Oct 2011	7.121	Nov 2012	-		7.121	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/PC:Panama City, FL	5.731	3.500	Oct 2011	-		-		-	Continuing	Continuing	Continuing
Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	7.714	3.500	Nov 2011	3.872	Nov 2012	-		3.872	Continuing	Continuing	Continuing
Test & Evaluation	WR	NSWC/COR:Corona, CA	5.986	2.980	Oct 2011	4.225	Nov 2012	-		4.225	Continuing	Continuing	Continuing
Test & Evaluation	WR	Various:Various	44.133	13.018	Nov 2011	7.980	Dec 2012	-		7.980	Continuing	Continuing	Continuing
Test & Evaluation/CSS	C/CPAF	LM/GD/Various:Various	32.936	10.118	Nov 2011	14.352	Dec 2012	-		14.352	Continuing	Continuing	Continuing
Test & Evaluation	WR	PEO C4I:Charleston, SC	5.856	2.540	Feb 2012	5.052	Oct 2012	-		5.052	Continuing	Continuing	Continuing
T&E Ordnance	WR	IWS 3:Not Specified	6.927	2.230	Dec 2011	2.000	Dec 2012	-		2.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			176.011	56.686		58.182		-		58.182			





**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Proj 3096</b>																												
Live Fire Test & Evaluation (LFT&E) - Flight 0																												
Planning; Post Delivery Developmental Testing (DT)/Operational Testing (OT) - Flight 0																												
Flight 0 DT / OT																												
Live Fire Test & Evaluation (LFT&E) - Flight 0+																												
Planning; Post Delivery Developmental Testing (DT)/Operational Testing (OT) - Flight 0+																												
Flight 0+ DT / OT																												
Milestone B																												
Total Ship Survivability Trial (TSST) LCS 3																												
Total Ship Survivability Trial (TSST) LCS 4																												
Milestone C																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3096: <i>Littoral Combat Ship</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3096</b>				
Live Fire Test & Evaluation (LFT&E) - Flight 0	1	2011	3	2014
Planning; Post Delivery Developmental Testing (DT)/Operational Testing (OT) - Flight 0	1	2011	3	2014
Flight 0 DT / OT	1	2011	3	2014
Live Fire Test & Evaluation (LFT&E) - Flight 0+	1	2011	4	2017
Planning: Post Delivery Developmental Testing (DT)/Operational Testing (OT) - Flight 0+	1	2011	4	2017
Flight 0+ DT / OT	1	2011	4	2017
Milestone B	2	2011	2	2011
Total Ship Survivability Trial (TSST) LCS 3	3	2014	3	2014
Total Ship Survivability Trial (TSST) LCS 4	1	2015	1	2015
Milestone C	2	2012	2	2012

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>				<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3129: <i>LCS Mission Package Development</i>	80.654	137.596	195.824	-	195.824	187.327	142.855	99.114	86.034	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Program provides focused war fighting capabilities in littoral mine countermeasures, countering small boat threats and littoral anti-submarine warfare to provide assured access to enable the US Joint Force operations in the littorals. A mission package is a combination of warfare mission modules with specialized crew, support equipment, and vehicles including manned helicopters and unmanned maritime systems. They are packaged in a modular fashion so that they can be quickly swapped out pier side. Mission module development includes architectures, interfaces and integration of mission systems. Mission systems integration also includes the procurement of the first mission packages to be used on the Flight 0 Littoral Combat Ships (LCS). The program has an inventory objective of 24 MCM mission packages, 24 SUW mission packages, and 16 ASW mission packages. Mission package procurement and delivery are aligned with the ship delivery schedule, mission area demand signal from the combatant commanders, and the retirement of legacy platforms. This means that 64 interchangeable mission packages will be available for use among the 55 ships of the LCS class to support global warfighting and peacetime presence requirements.

An incremental development approach to delivering capability allows the continued insertion of mature capabilities throughout the life of the program without the need for modifications to the sea frames. Future mission package increments will be considered when joint warfighting objectives or changing threats create new operational capability requirements that cannot be met by current mission package designs, or when new technological opportunities allow significant progress toward delivering cost effective, enhanced capabilities. Future mission module increments can be tested, constructed, and incorporated into existing mission packages, one of the most important benefits of LCS modular design.

The LCS MCM mission package will counter deep, shallow, and tethered mines in the littoral without putting Sailors in the minefield. When the MCM mission package is embarked, LCS is capable of conducting detect-to-engage operations (hunting, sweeping, and neutralization) against very shallow and deep-water sea mine threats. The MCM mission package provides these capabilities through the use of sensors and weapons deployed from an MH-60S multi-mission helicopter and unmanned off-board vehicles. The MCM package consists of the following systems: Coastal Battlefield Reconnaissance & Analysis (COBRA), Airborne Laser Mine Detection System (ALMDS), Organic Airborne & Surface Influence Sweep (OASIS) System, Remote Multi-Mission Vehicle (RMMV), AQS-20A Mine hunting Sonar, Airborne Mine Neutralization System (AMNS), Unmanned Integrated Sweep System (UISS)(which is comprised of the Unmanned Surface Vehicle (USV) and the Unmanned Surface Sweep System (US3)), Surface Mine Countermeasures (SMCM) Unmanned Undersea Vehicle (UUV) with Low Frequency Broad Band (LFBB), support equipment and support containers. The individual systems are combined into five modules: Organic Airborne Mine Countermeasures (OAMCM) Module, Remote Mine Hunting Module, Unmanned Influence Sweep Module, Coastal Mine Reconnaissance Module and the Buried Mine Module. The Organic Airborne Mine Countermeasures Module provides rapid mine hunting and clearing using the embarked MH-60 helicopter and Mine Countermeasure systems. The Remote Mine Hunting Module uses a Remote Multi-Mission Vehicle (RMMV) and AQS-20A to provide sustained mine hunting and clearing from the surface. The Influence Sweep Module provides endurance bottom sweep capability, the Coastal Mine Reconnaissance Module (CMRM) will allow detection of minefield patterns and obstacles from an embarked Fire

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

Scout VTUAV, and the Buried Mine Module will allow detection of buried mines. When complete, the MCM mission package will provide full capability against floating, tethered, bottom, and buried mines.

The ASW mission package enables LCS to conduct detect-to-engage operations against modern submarines that pose a threat. Specific ASW capabilities include protecting forces in transit, protecting joint operating areas, and establishing ASW barriers.

ASW modules developed for Increment II provide the warfighter capabilities that can be employed for ASW area search as well as high value unit escort missions. Module components include a torpedo countermeasures system, a Variable Depth Sonar, and a Multi-Function Towed Array. The Aviation Module offers airborne threat localization and engagement capability through a Fire Scout VTUAV and an MH-60R with MK54 torpedoes. The individual systems are combined into three modules: Torpedo Defense Countermeasure; ASW Escort/Large area Clearance; and Localization & Engagement.

The SUW mission package increases firepower and offensive/defensive capabilities against large numbers of highly maneuverable, fast, small craft threats, giving LCS the ability to protect the sea lanes and move a force quickly through a choke point or other strategic waterway. With the SUW mission package embarked, LCS has enhanced detection and engagement capability against enemy small craft and similar littoral surface threats.

The SUW mission package is comprised of several modules including the Gun Mission Module (GMM). The GMM is comprised of two high velocity 30mm cannons and is augmented with the ship's 57mm gun to counter close in to mid-range threats. The Aviation Module uses the embarked the MH-60R helicopter with Hellfire missile and the MQ-8B Fire Scout Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV) - for the detection, identification, and classification of surface contacts and to engage long range threats. The Maritime Security Module supports the embarkation of a Visit, Board, Search, and Seizure (VBSS) team. The Irregular Warfare Module provides an expanded medical and training capability. The Surface to Surface Missile Module (SSMM) will provide missile coverage for mid-range threats and small boats.

The LCS Mission Modules Common Equipment consists of enabling products required by all mission packages to provide common hardware interfaces, computer operating environment, communications systems, aviation interface systems and portable development & integration test-sets. Common hardware interfaces include definition, installation and control of mechanical, electrical and cooling requirements common to all mission packages. The Mission Package Computing Environment (MPCE) provides common services and Operating Environment to support all Mission Package Application Software and Open Architecture Products. The Multi-Vehicle Communications System (MVCS) enables the control and data exchange of simultaneous unmanned mission vehicles and the Seaframes. Aviation interface systems include integration and management of data communications, data processing and physical hardware interfaces such as common equipment and containers used by all mission packages. Development and integration test-sets provide a mobile operating environment installed in the Mission Package Portable Control Stations (MP-PCS) to serve as a surrogate Seaframe during mission package development and integration test events at test ranges.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> System Engineering	2.585	16.507	13.816
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

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

	FY 2011	FY 2012	FY 2013
<p>Provided system engineering (SE) support for emerging requests from the fleet for new mission requirements. Lead and directed all SE mission module efforts; developed and managed accredited models and simulation tools to support integration, certification, training of SUW/MCM LCS mission packages and hydrodynamic effects encountered by unmanned vehicles as they are launched and recovered from the LCS platforms. Developed Reliability, Availability, and Maintainability-Cost reports. Maintained Requirements Baseline Traceability in the Dynamic Object Oriented Requirements System - (DOORS). Provided system safety support for mission module test events. Completed all required Certification Test and Evaluation, coordinated Platform IT Risk Approval, finalized Vulnerability Measurement and preparation for connection agreements for Mission Modules (MM) for Information Assurance Authority to Operate. Provided Configuration Management for the Configuration Control Board (CCB) and Technical Scope Reviews leading toward Engineering Change Proposal (ECP) development and implementation. Supported Small Business Innovation Research (SBIR) transition initiatives. Completed the embarkation/debarkation plans in accordance to the established Holistic Embarkation/Debarkation Guide. Developed plans for transitioning to production efforts.</p> <p><b>FY 2012 Plans:</b> Begin transition of technology from Office of Naval Research (ONR) programs including multi-vehicle mission planner and supervision of Unmanned Vehicles (UxV) (Unmanned Surface Vehicle (USV), Unmanned Aerial Vehicle (UAV) and Unmanned Undersea Vehicle (UUV)). Complete development of the mission modules requirements baseline with technical requirements traceability links in the consolidated DOORS database. Update all ASW System Engineering documentation to reflect ASW MP Increment II requirements. Document all interface requirements between ASW MP and other common components mission package application software (MPAS), mission package operating environment (MPOE), and support containers). Define and document how the ASW MP Increment II will achieve all specified requirements related to the key performance parameters, concept of operations, how design considerations will be addressed and balanced with other program requirements and establish a technical baseline. Update Interface Control Document (ICD) to version 2.0 and update Interface Design Specification (IDS) to version 2.0. Establish a functional architecture to support the common software architecture. Establish Reliability baseline for the MCM/SUW MP. Initiate Reliability Growth Plans for the MCM/SUW MP. Initiate the design of the Common Software Architecture baseline incorporating elements from two advanced study projects, the Unmanned Systems Common Control (USCC) project and the Supervision of UxV Mission Management by Interactive Teams (SUMMIT). The Common Software Architecture (CSA) baseline will support all Mission Packages and will provide a single LCS Mission Package software load for any MP. Conduct the Preliminary Design Review (PDR) of the CSA and build a CSA evaluation prototype based on the USCC architecture. Measure latency, throughput and reliability, and demonstrate proof of concept. Provide oversight and guidance as the Principal for Safety for the LCS MMs. Coordinate and lead all environmental compliance, hazardous material management and occupation health aspects of the LCS MM Program. Provide Configuration Management for the Technical Scope Reviews capturing all configuration updates. Evaluate Advanced Change/Study Notice and ECPs to add hardware and software capabilities to the mission modules. Conduct system engineering readiness reviews. Identify and control all mission package configurations. Conduct all required system engineering (SE) reviews in accordance with NAVSEA systems engineering technical reviews</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
---	----------------	----------------	----------------

<p>manual. Manage all Information Assurance (IA) tasks, providing IA certification test and evaluation for all MCM/SUW MPs. Provide support for requirements verification and validation. Provide capability to accomplish software readiness monitoring including the development of software specific readiness criteria and integration considerations. Develop documentation and engineering analysis necessary to ensure approval from the Mission Modules Production Readiness Review.</p> <p><b>FY 2013 Plans:</b> Monitor Reliability Growth and update plans as necessary. Conduct the Critical Design Review (CDR) of the Common Software Architecture (CSA), Increment I. CSA Increment I will provide partial functionality to demonstrate mission module off-board control. Incorporate the CSA into the MCM mission package application software (MPAS) and conduct integration and testing of CSA Increment I. Integration and testing results will serve as the basis for development of CSA Increment II (SUW common baseline), which will begin in FY14.</p> <p>Develop or modify end-to-end architecture views for future ASW mission module configuration, changes to the MCM mission module for inclusion of the Surface Mine Countermeasure (SMCM) UUV with Low Frequency Broad Band (LFBB), and changes to the SUW mission module for the revised Surface-to-Surface Missile Module (SSMM) configuration.</p> <p>Conduct system engineering analysis for in-water refueling of off-board mission vehicles. Provide engineering analysis reports to the Systems Engineering Integrated Product Team (IPT). Manage the LCS Mission Modules Dynamic Object Oriented Requirements (DOORs) data base. Maintain and execute the Change Control Board (CCB). Provide management oversight for the Risk Management Board. Provide software development oversight through the software management group. Update Platform IT Risk Approval (PRA) packages. Conduct annual Certification Test and Evaluation (CT&amp;E) events. Conduct system safety Environment, Safety and Occupational Health (ESOH) working group. Prepare Weapons Systems Explosives Safety Review Board (WSESRB) technical data packages. Conduct National Environmental Policy Act (NEPA) and environmental planning and coordination. Capture and track Test Observation Reports (TORs). Conduct weight management analysis and provide oversight. Conduct corrosion prevention and control oversight and manage Corrosion Prevention Act team.</p>			
--	--	--	--

<b>Title:</b> Program Management	4.096	6.403	6.108
<b>Articles:</b>	0	0	0

**FY 2011 Accomplishments:**  
Continued program management (PM) efforts: business and administrative planning, organizing, directing, coordinating, controlling, and approval actions designated to accomplish overall program objectives that are not associated with specific hardware elements or included in systems engineering.

**FY 2012 Plans:**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Support all efforts associated with Milestone B. Continue PM efforts: business and administrative planning, organizing, directing, coordinating, controlling, and approval actions designated to accomplish overall program objectives that are not associated with specific hardware elements or included in systems engineering. Provide management oversight for the scheduled test events and for new LCS MM capabilities.  <b>FY 2013 Plans:</b> Support all efforts associated with Milestone C. Continue PM efforts: business and administrative planning, organizing, directing, coordinating, controlling, and approval actions designated to accomplish overall program objectives that are not associated with specific hardware elements or included in systems engineering.				
<b>Title:</b> System Test and Evaluation		19.012	30.051	26.360
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Conducted seaframe-to-package work-up and integration testing of the MCM MP aboard LCS 2 (USS INDEPENDENCE). Conducted test planning and execution of the MCM Mission Package (MP) Developmental Testing (DT) aboard LCS 2 (USS INDEPENDENCE). Conducted test planning and documentation for the MCM MP DT aboard LCS 1 (USS FREEDOM) planned for FY 2012. Performed verification and validation of mission module and mission package requirements. Performed and documented analysis and evaluation of test results.				
<b>FY 2012 Plans:</b> Complete test execution and conduct data analysis and test reporting of the MCM MP Developmental Test (DT) aboard LCS 2 (USS INDEPENDENCE). Conduct seaframe-to-mission package check-out, work up, and integration testing of the MCM MP aboard LCS 1 (USS FREEDOM). Conduct test planning, conduct DT and complete data analysis, and test reporting for SUW MP DT aboard LCS 1 (USS FREEDOM). Conduct test planning, test documentation, and begin execution of SUW MP TECHEVAL aboard LCS 1 (USS FREEDOM). Maintain the Mission Package Integration Lab in support of Mission Package software development, testing, and certification for both seaframes. Support incremental testing and evaluation (including environmental and shock) of modules under integration and certification phases, including managing and supporting test assets needed for all mission package testing. Perform verification and validation of mission module and mission package requirements. Perform and document analysis, and evaluate and report test results. Conduct Mission Package certification test events. Final certification will be conducted in conjunction with IOT&E for each MP prior to fleet introduction. Conduct Test planning and documentation for SUW MP Structural Test Fire and DT aboard LCS 2 (USS INDEPENDENCE).				
<b>FY 2013 Plans:</b> Complete SUW MP DT aboard LCS 1 (USS FREEDOM). Complete SUW MP TECHEVAL aboard LCS 1 (USS FREEDOM). Conduct data analysis and test reporting of SUW MP TECHEVAL onboard LCS 1 (USS FREEDOM). Conduct test planning, test execution, data analysis, and reporting for SUW MP IOT&E aboard LCS 1 (USS FREEDOM). Conduct SUW MP TECHEVAL on				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>LCS 1 with increasingly stressing scenarios to characterize performance of SUW MP against CDD requirements. Conduct risk mitigation for SUW MP OPEVAL. Conduct test planning, test execution, data analysis, and reporting for SUW MP Gun Mission Module(GMM) DT on LCS 2 (USS INDEPENDENCE). Test events will include Integrated Tracking Exercise (TRACKEX), 30mm Towed Sled Firing events, and a Layered Defense firing event against small boats and targets utilizing MH-60R, Vertical Takeoff and Landing Tactical Unmanned Aerial Vehicle (VTUAV), 57mm Gun, and 30mm GMMs. Conduct test planning and data analysis for SUW MP Follow On Testing (DT and OT) aboard LCS 4.</p> <p>Conduct test planning, test execution, data analysis, and test reporting for MCM MP DT aboard LCS 1 (USS FREEDOM) and LCS 2 (USS INDEPENDENCE). Conduct DT test planning, documentation, execution, analysis, and reporting of the MCM MP Technical Evaluation (TECHEVAL) and Initial Operational Test and Evaluation (IOT&amp;E) aboard LCS 2 (USS INDEPENDENCE). Conduct test planning and data analysis for MCM MP follow on Testing (DT and OT) aboard LCS 3. Conduct test planning, test execution, data analysis and reporting for OASIS TECHEVAL and IOT&amp;E on the LCS platform. Conduct early test planning and initial integration test of the ASW MP on the LCS platform. Perform data analysis of initial ASW MP testing.</p> <p>Maintain the Mission Package Integration Lab in support of Mission Package software development, testing and certification for both Seaframes. Support incremental testing and evaluation (including environmental and shock) of modules under integration and certification phases, including managing and supporting test assets needed for all mission package testing.</p>				
<p><b>Title:</b> Integration, Assemble, Test and Checkout</p> <p align="right"><b>Articles:</b></p>		0.787	8.360	5.588
<p><b>FY 2011 Accomplishments:</b> Continued program-level Integration, Assembly, Test &amp; Checkout efforts: Technical and functional activities associated with the development and production mission systems, parts, materials and software required to assemble mission modules hardware/software elements into mission equipment and integrated with seaframes. This effort included integration management of common processing systems, off-board communications systems, aviation systems, common and mission package software products and mission modules-to-seaframe integration. Efforts included integration engineering at the waterfront in support of ships under construction and conducting initial testing.</p> <p><b>FY 2012 Plans:</b> Continue program-level Integration, Assembly, Test &amp; Checkout efforts: Technical and functional activities associated with the development and production mission systems, parts, materials, and software required to assemble mission modules hardware/software elements into mission equipment and integrate with sea-frames. This effort includes integration management, common processing systems, off board communications systems, aviation systems, and common and mission package software products and mission modules-to-seaframe integration. Effort includes integration engineering at the waterfront in support of ships under</p>		0	0	0



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>construction and conducting initial testing. Manage and execute integration, assembly, test and checkout of technology refresh solutions for mission package computing environment and off-board communications systems, including the full capability multi-vehicle communication system (MVCS) and the aviation communications systems. Initiate and lead development, integration, and testing of the common MM Open Architecture (OA) and associated architecture products and common mission package software baseline. Lead and manage execution of engineering change proposals (ECPs) required to integrate mission package systems and subsystems into LCS 1 and LCS 2.</p> <p>Provide for waterfront support for embarkation and debarkation of Mission Packages for test events. Effort includes integration engineering at the waterfront in support of ships under construction and conducting initial testing.</p> <p><b>FY 2013 Plans:</b> Provide for water front support for embarkation and debarkation of Mission Packages for test events. Effort includes integration engineering at the waterfront in support of ships under construction and conducting initial testing.</p> <p>Implement MVCS ECPs for LCS 1 and LCS 2 topside alterations. Conduct characterization of Line of Sight (LOS) and Over-the-Horizon (OTH) communications coverage and ranges for LCS 1. Implement Tactical Common Data Link (TCDL) monitor and control ECP on LCS 1. Implement Tactical Common Data Link (TCDL) monitor and control ECP on LCS sea-frames.</p> <p>Continue program level Integration, Assembly, Test &amp; Checkout efforts of ECPs requirement to correct findings from Developmental and Operational test events.</p>				
<p><b>Title:</b> Training</p> <p><b>FY 2011 Accomplishments:</b> Completed development and installed LCS MCM mission package (MP) team training capability to support MP Train-to-Certify Key Performance Parameter (KPP) and begin development of Common MP Trainer (CMPT) software for SUW team training. Installed and integrated CMPT into LCS Shore Based Training Facility (SBTF), performed initial instructor training on CMPT, and integrated SBTF into Navy cooperative training environment to support Joint Synthetic training. Began integration efforts of current MP training capability into the LCS SBTF. Began the technical requirements development to integrate MP simulated training into the LCS Seaframe simulated training environment in preparation for a FY 12 connection. Network Tactical Training System (NTTS) with MCM unmanned vehicle capability to the SBTF to replace ONR partial capability demonstration system. Began training curriculum development. Provided initial training for navy instructors on MP simulated training environment.</p>		7.524 0	16.142 0	14.649 0
		<b>Articles:</b>		

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Provided MP crews training for formal MCM and SUW test events. Provide vendor training to MP crew members in accordance with Crew Schedule Phasing Plans (CSPPs).</p> <p><b>FY 2012 Plans:</b> Begin transition from vendor training to a Navy Continuous Training Environment (NCTE) training facility with anticipated FY14 partial Ready-for-Training (RFT) using the CMPT which is capable of meeting Train-to-Certify (T2C) KPP for team training certification requirements.</p> <p>Continue development of CMPT software effort and integrate CMPT into the LCS Training Facility (LTF). After CMPT installation is complete, integrate both CMPT and LTF into the NCTE to support participation in Joint Synthetic Training and numbered fleet commander deployment unit certification events. Conduct Mine Warfare Evaluator (MIWE), Remote Vehicle Operator (RVO) and Remote Sensor Operator (RSO) vendor course pilots and transition to formal classes using CMPT and NTTS to support T2C KPP. Deliver initial NTTS trainer with MCM capability for (Remote Vehicle Operator - RVO and Remote Sensor Operator - RSO) software and hardware to replace ONR partial capability demonstration system. Perform instructor training on NTTS. Continue CMPT software development to include delivery of initial SUW team training capability. Expand CMPT SUW team training capability and begin NTTS development to support Gun Control Operator (GCO) Training. Develop follow-on MCM mission package training capability as new MCM systems are introduced. Begin transition from vendor training to formal SUW Gun Mission Module (GMM) system training course. Complete MCM MP (MP) formal training curriculum (including AQS-20, ALMDS, AMNS, OASIS, and COBRA) and begin SUW formal training curriculum instruction development for MP Fundamentals, Operations and Planning &amp; Tactics Courses necessary to achieve partial RFT in FY14. Update formal curriculum to incorporate findings from program test events. Procure, integrate, and install phase 1 of the GMM course software. Build two of SUW MK50 Mod 0 Modular Gun Weapon System (MGWS) training courseware and integrate training. Fund training-related detachment travel in support of training and test events. Conduct vendor training for formal MCM MP and SUW MP test events. Fund ten contract instructors (five MCM and five SUW) for LTF prior to transition in FY14. Provide MP crews additional training for formal MCM and SUW test events. Provide vendor and interim formal training to MP replacement Sailors, (two MCM and two SUW detachments), in accordance with CSPPs.</p> <p><b>FY 2013 Plans:</b> Complete development and deliver the final CMPT software courseware for MCM mission package (MP) and SUW MP (MP Fundamentals, MP Operations and MP Planning and Tactics courses) to support partial RFT for MP team training. Complete and deliver NTTS GCO hardware add-on and software for GCO trainer capability to LTF. Continue transition from vendor training to a training facility with anticipated FY14 initial RFT using CMPT team trainer and NTTS part task trainers. Perform instructor training on NTTS. Complete transition to SUW GMM training course. Update formal curriculum to incorporate findings from program test events, operations and classroom experience. Complete SUW MP formal training curriculum instruction development for MP Fundamentals, Operations and Planning &amp; Tactics Courses. Procure and install phase 2 (final phase) GMM difference</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>course materials. Prepare for transition to Front-End-Analysis (FEA) virtual ship-centric training solution. Continue courseware development, integrate training, and train the trainers. Provide MP crews vendor training for formal MCM, SUW, and ASW MP test events. Conduct 16 contract instructors (7 MCM and 9 SUW) for LTF prior to transition in FY14. Fund training related detachment travel and provide Vendor and interim formal training to mission module replacement Sailors, three MCM and three SUW detachments in accordance with CSPPs.</p> <p><b>Title:</b> Program Technical Data</p> <p align="right"><b>Articles:</b></p>		-	1.082 0	1.279 0
<p><b>FY 2012 Plans:</b> Provide Integrated Logistics Support for the scheduled test events and for new capabilities of the LCS MMs. Provides validation and verification for technical data. Provide for development of LCS MM specific transportation requirements to Naval support organizations. Update Program Technical Data packages to incorporate findings from the MCM MP and SUW MP DT test events and MCM MP TECHEVAL and OT events.</p> <p><b>FY 2013 Plans:</b> Update Program Technical Data packages to incorporate findings from SUW MP TECHEVAL test events and SUW MP OT events. Continue Integrated Logistics Support efforts for the scheduled test events. Implement Technical Manual Management Activity to review, produce and distribute technical documentation. Continue development of Maintenance Figure of Merit (MFOM) to maintenance management that incorporates engineering, failure, technical and provisioning into single model that uses criticality factors to assist prioritization of maintenance management.</p>				
<p><b>Title:</b> Common Equipment</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Mission Data Processing: Developed, tested and validated the redesign of the Mission Package Computing Environment (MPCE) hardware and associated Mission Package Operating Environment (MPOE). Developed shipboard Engineering Change Proposals (ECPs) related to MPCE. Performed Open Architecture engineering initial analyses and studies of Open Architecture products.</p> <p>Off-board Communications: Continued development of capability for the Multi-Vehicle Communications System (MVCS) used for the management of off-board vehicles. Integrated and tested RT-1944/U radio terminal set with the mission modules and seaframes. Performed MVCS ECPs on mission module vehicles and LCS seaframes. Started evaluation, integration testing and installation of cryptographic systems for unmanned vehicles.</p>		17.456 0	12.892 0	12.230 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Aviation Interface: Continued development of the helo support function and helo support kits for employment on the SH-60B and M-60R helicopters. These efforts will continue into FY12.</p> <p><b>FY 2012 Plans:</b> Mission Data Processing: Finalize development, test and validation of updated MPCE hardware and associated Mission Package Services (MPS) and MPOE. Begin comprehensive system-level analyses and evaluation of next generation MPCE technology requirements. Perform detailed OA evaluations and initiate implementation. Begin implementation of common mission package software program baseline. Provide MPCE technical and test support for the MCM Technical Evaluation on LCS 2.</p> <p>Off-board Communications: Continue development towards full capability of the MVCS Build 1.0, used for the concurrent management of multiple off-board unmanned vehicles. Conduct dock-side testing of RT-1944/U radio terminal set with two Remote Multi-Mission Vehicles (RMMV) and conduct in-port and at-sea seaframes integrations and testing. Conduct Study of MVCS hardware and continue developing and performing MVCS ECPs on Unmanned Integrated Sweep System (UISS) and LCS 2. Continue performing engineering design, testing and evaluation of aerial communication systems for over-the-horizon range. Continue integration testing and installation of cryptographic systems for unmanned vehicles. Initiate Over-the-Horizon (OTH) radio replacement study for the RMMV legacy PRC-117F VHF radio. Provide Off-board Communications technical and test support for the MCM Developmental Test (DT) on LCS 2.</p> <p>Aviation Interface: Continue development and begin integration of the helo support function and helo support kits for employment on the SH-60B and M-60R helicopters. Continue performing engineering design, testing and evaluation of unmanned air vehicle sensor and communications payloads. Continue performing integration and installation of mission module aviation systems and subsystems on LCS seaframes and on developmental test assets.</p> <p><b>FY 2013 Plans:</b> Mission Data Processing: Implement plans for the next generation development, test and validation of technology redesign for MPCE hardware and associated MPS and MPOE. Perform ECP's related to MPCE on existing land-based software development/integration labs, and two MPCE Portable Control Stations. Continue OA implementation. Conduct Find/Fix/Repair of software change requests resulting from the MCM TECHEVAL and OT events. Implement changes to MPS and MPOE as a result of formal testing. Provide technical and test support for SUW MP TECHEVAL and DT/OT events.</p> <p>Off-board Communications: Evaluate and complete full capability of the MVCS used for the management of multiple off board vehicles. Integrate and test RT-1944/U radio terminal set with the mission modules and seaframes. Conduct Find/Fix/Repair of software change requests resulting from the MCM TECHEVAL and OT events. Continue developing and performing MVCS ECPs on mission module vehicles and LCS seaframes. Complete engineering design, testing and evaluation of aerial communication</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>		<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
systems for OTH range. Based on the FY12 technical study recommendations, evaluate the new OTH radio to replace RMMV's legacy PRC-117F VHF radio. Conduct integration testing and installation of cryptographic systems for unmanned vehicles.		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Aviation Interface: Complete implementation of the helo support function and helo support kits for employment with the SUW mission packages in support of DT events.				
<b>Title:</b> Mine Countermeasures (MCM) Mission Package		13.238	22.296	23.602
<b>Articles:</b>		0	0	0
<b>FY 2011 Accomplishments:</b>				
Conducted Remote Multi Mission Vehicle (RMMV) and UISS launch, handling, and recovery test on LCS 2. Completed integration tests of MCM mission package (MP) increment 1 on LCS 1 and LCS 2. Validated and verified test plans and test procedures. Developed Mission Package Application Software (MPAS) builds in support of MCM MP DT events. Prioritized and incorporated all high priority, certification limiting Problem Trouble Reports (PTRs). Conducted certification of MCM MP to include weapons system certification, human systems integration, information assurance, and safety. Continued development, integration and testing of UISS and US3. Conducted MCM MP DT events.				
<b>FY 2012 Plans:</b>				
Continue development, integration and testing of Unmanned Influence Sweep System (UISS). Groom and conduct End-to-End testing to ensure MCM mission package readiness to enter TECHEVAL. Conduct KPP modeling analysis. Integrate COBRA/ VTUAV into MCM mission package.				
MPAS: In support of MCM MP TECHEVAL, incorporate the following items into MPAS: RMMV RGP V4.1 improvements and correction of software Program Trouble Reports (PTRs) identified during DT events. Deliver next MPAS build in support of TECHEVAL. Resolve hardware PTRs identified during DT through development of Advanced Change Study Notices (ACSNs). Perform Systems Engineering (risk management, information assurance, human systems integration, and safety), Configuration management and Integrated Logistics Support.				
<b>FY 2013 Plans:</b>				
Complete integration and testing of UISS. Procure two USV EDM. Initial design for Surface Mine Countermeasures (SMCM) UUC container. Design and integration of SMCM UUV into MCM MPs. Groom and conduct End-to-End testing to ensure MCM mission package readiness to enter OPEVAL. Conduct KPP modeling analysis. Resolve hardware PTRs identified during TECHEVAL through development of ACSNs.				
MPAS: In support of MCM mission package OT, incorporate the following items into MPAS: RMMV RGP V4.2 improvements, correction of software PTRs identified during TECHEVAL. Deliver next MPAS build in support of OT. Perform systems				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
engineering (risk management, information assurance, human systems integration, safety), configuration management and Integrated Logistics Support.				
<p><b>Title:</b> Anti-Submarine Warfare (ASW) Mission Package</p> <p><b>Articles:</b></p> <p><b>FY 2013 Plans:</b> Conduct a Critical Design Review (CDR) that focuses on the transition of the final system design, development and integration of ASW MP Increment II ASW Escort and Torpedo Defense mission modules. Develop required Engineering Development Model (EDM). Conduct component and system level testing and related predictive performance modeling and simulation to establish system and module performance and reliability baselines. Provide developmental engineering support for logistical engineering data and technical documentation.</p> <p>Manage and administer required Systems Engineering Technical Reviews (SETR), and required systems Certification Reviews. Conduct risk mitigation efforts necessary to cost effectively minimize residual risk to mission module and overall program performance. Conduct technology demonstrations to benchmark technology system performance and related potential to mitigate current risks and acknowledged capability gaps.</p> <p>Provide a common ship-to-air integration and test of Helo Support Function (HSF) Mission Package Application Software (MPAS) to ensure availability of capability for planned ASW Mission Package activities. Establish helicopter interface requirements, integrate, and demonstrate end-to-end capability.</p>		-	-	34.367 0
<p><b>Title:</b> Surface Warfare (SUW) Mission Package</p> <p><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Provide find, fix and repair for technical issues associated with Gun Mission Module and Mission Package Application Software (MPAS) identified during integration test events. Conduct environmental test series on GMM MP #2 and incorporate required engineering change proposals (ECP) into the GMM TDP. Integrate 30MM Gun Weapon System (GWS) manufacturer software safety fixes and (MPAS) / Gun Module Remote Control System (GMRCS) hi-priority Computer Program Change Requests (CPCR) for an LCS-1 DT ready software build. Characterize 30MM High Explosive Incendiary (HEI) and Armor Piercing Fin Stabilized Discarding Sabot (APFSDS) ammo necessary for successful completion of DT/OT. Conduct GMM Critical Design Review (CDR). Conduct planning and preparation necessary for DT test event aboard LCS-1 including land-based End-to-End (E2E) integration events, WSESRB/SSSTRP Technical Data Package (TDP), and crew training events. Provide GMM model deliveries and engineering drawing reviews/approvals to facilitate the Production Readiness Review (PRR) and production of GMM MP #3 and MP #4. Provide close-out support of the Non-Line of Sight Launch System (NLOS-LS) integration with the</p>		15.956 0	22.363 0	55.864 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>		<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2011</b>	<b>FY 2012</b>
<p>Surface-to-Surface Missile Module (SSMM). Provide efforts for SSMM future capabilities in the areas of missile, launcher, and module specifications, investigating restrained firing solutions, defining mechanical/electrical specifications for integration of the missile, launcher, and module, and establishing plans for design architectures and development efforts.</p> <p>In support of SSMM redesign, conduct requirements decomposition and requirements functional alignment in preparations for the SSMM SRR in FY12.</p> <p><b>FY 2012 Plans:</b></p> <p>In support of the SSMM redesign, conduct System Requirement Review (SRR) including missile, launcher, SSMM and software specifications. Modify the SSMM Increment 1 to address surface missile system requirements and Navy environmental standards. Conduct preliminary Weapon Systems Explosive Safety Review Board (WSESRB) on SSMM Increment 1 and Griffin missile program. Conduct one baseline restrained fire test and two engineering restrained fire test.</p> <p>Procure two Griffin Block IIB missiles in support of sea based barge testing. Procure one full suite of Battle Management System (BMS) hardware that includes three KARNACs and one Command and Control (C2) system. Procure two GMS prototypes to support restrained fire mitigation engineering tests. Modify BMS software based on results from Dynamic Transfer Alignment testing.</p> <p>Provide Find/Fix/Repair for technical issues associated with GMM and Mission Package Application Software (MPAS) identified during integration and developmental testing and conduct necessary regression testing on proposed fixes. Complete environmental testing on Mission Package (MP) #2 and incorporate required Engineering Change Proposals (ECP) into the GMM Technical Data Package (TDP). Provide developmental engineering support, equipment, and documentation for logistical engineering data and technical publications to include training (ship's crew and Mission Package Support Facility (MPSF) personnel), maintenance and provisioning. Conduct combat system certification, mission package certification, obtain WSESRB / Software System Safety Technical Review Panel (SSSTRP) and Information Assurance (IA) approvals, and conduct land based test events with each seaframe manufacturer prior to conducting formal shipboard test events. Groom and update the SUW MP to support Developmental Test (DT) events. Support the planning and preparations for FY13 Operational Test (OT) of SUW MP Increment 1 and LCS 2 STF.</p> <p><b>FY 2013 Plans:</b></p> <p>Continue design and development of SSMM Increment 1. Conduct a Preliminary Design Review (PDR) that focuses on the SSMM Increment 1. Finalize design modification to the SSMM Increment 1 and procure necessary hardware to support barge shots. Conduct one restrained fire engineering test at the GMS level. Conduct one restrained fire test that includes the GMS mechanical support structure and the BMS electronics.</p>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Conduct SSMM Increment 1 end-to-end test event that includes SSMM Increment 1 hardware / software, BMS, and MEP. Begin SSMM Increment 1 and missile environmental confidence testing focusing on shock, vibe, Electromagnetic Environmental Effects (E3), temperature and salt spray. Procure ten Griffin B-Block II missiles to support developmental testing, procure seven GMS prototypes to support flight testing, procure three SSMM Increment 1 launch systems to support flight testing and procure four suites of BMS hardware and software to support flight testing.</p> <p>Award the competitive contract for the SSMM Increment 2 missile system. Initiate SSMM Increment 2 missile system design. Conduct appropriate systems engineering technical reviews to ensure missile system design meets the total CDD requirement. Begin planning the SSMM Increment 2 environmental confidence level testing, start development of the detailed launcher design that supports the GMS concept. Generate SSMM Increment 2 MEP requirements and architecture.</p> <p>Find/Fix/Repair technical issues associated with GMM and MPAS identified during STF and DT/OT events. Maintain configuration control of SUW MP data, hardware, and software. Collect data and perform analysis associated with the SUW MP Reliability, Maintainability, and Availability (RMA) program. Conduct combat system certification, MP certification, obtain WSESRB/SSSTRP approval, IA approvals, and conduct land based test events with each seaframe manufacturer prior to conducting shipboard events. Support formal testing of the SUW MP for LCS 1 OT events, STF from LCS 2, DT from LCS 2, and OT from LCS 2.</p> <p>In support of Irregular Warfare Module (IWM), conduct the System Requirements Review, Preliminary Design Review, Critical Design Review and develop an Engineering Development Module. The IWM consists of the following enhancements to the SUW MP: an Afloat Trauma Care (ATC) Medical unit, a Humanitarian Assistance/Health Services Support Medical unit and a Training unit.</p>				
<p><b>Title:</b> Reliability, Availability and Maintainability</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2012 Plans:</b> Update Reliability, Availability, Maintainability-Cost (RAM-C) plan in support of MS C. Refine RAM model assumptions based on actual data. Implement a reliability growth program that provides assessment to determine changes to the mission module baselines. The reliability growth program metrics and assessments will provide data to qualify and quantify suitability requirements changes and improvements to lower Total Ownership Costs at the mission module level. Develop a Failure Reporting Analysis, Corrective Action System (FRACAS) tailored to the mission module system of systems to include MPCE/MVCS hardware and software failures and modes. Run additional RAM model scenarios incorporating actual performance/reliability/maintainability data from test events and updated mission profiles to include peacetime and wartime analysis. Also establish RAM model</p>		-	1.500 0	1.961 0



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
scenarios involving multiple sea-frames employing multiple mission systems simultaneously. Begin data gathering efforts for the ASW MP.			
<b>FY 2013 Plans:</b> Continue with RAM efforts to provide multiple excursions that consider multiple MPs and multiple ships within a single area of responsibility (AOR) to identify major contributors to MP RAM model. Continue to refine RAM model assumptions based on actual data. Conduct multiple sensitivity analysis to quantify the effect of alternate sparing philosophies (i.e. more onboard spares, complete spare system, etc.) based on mission module availability. Determine the maintenance throughput capability for the mission systems at the Mission Package Support Facility/Mission Module Readiness Center (MPSF/MMRC) depot. Continue the introduction of the ASW MP into the program RAM model.			
<b>Accomplishments/Planned Programs Subtotals</b>	80.654	137.596	195.824

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 2127 : <i>Littoral Combat Ship</i>	1,241.477	1,755.093	1,784.959	0.000	1,784.959	1,819.575	1,881.485	1,012.988	896.027	17,562.449	30,388.374
• 1600 : <i>LCS Common Mission Modules Equipment</i>	41.145	63.448	31.319	0.000	31.319	46.037	30.979	14.729	18.595	Continuing	Continuing
• 0443 : <i>Aircraft Procurement, Navy</i>	58.732	191.986	124.573	0.000	124.573	129.003	114.750	124.510	94.990	Continuing	Continuing
• 5110: <i>Outfitting/Post Delivery</i>	4.678	49.013	60.053	0.000	60.053	76.393	132.715	133.787	209.986	663.574	1,332.956
• 1320: <i>LCS Training</i>	0.000	20.709	20.640	0.000	20.640	32.924	16.513	17.983	23.191	Continuing	Continuing
• 0944: <i>LCS Class Support Equipment</i>	0.000	0.000	19.865	0.000	19.865	21.278	35.469	36.640	60.800	Continuing	Continuing
• 0981: <i>Items Under \$5M</i>	8.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.703
• 1601: <i>LCS MCM Mission Modules</i>	0.000	0.000	38.392	0.000	38.392	68.926	185.056	219.850	219.852	Continuing	Continuing
• 1602: <i>LCS ASW Mission Modules</i>	0.000	0.000	0.000	0.000	0.000	0.000	3.436	23.612	44.754	Continuing	Continuing
• 1603: <i>LCS SUW Mission Modules</i>	0.000	0.000	32.897	0.000	32.897	37.260	40.098	46.342	67.630	Continuing	Continuing
• 4221: <i>LCS Module Weapons</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.100	Continuing	Continuing

**D. Acquisition Strategy**  
The LCS Mission Module Acquisition Strategy is employing an incremental procurement approach to allow for the rapid introduction of additional capabilities as system technology matures. This phased plan provides incremental fielding of capability through the introduction of mature programs of record into the respective Mission Packages until the full baseline capability defined in the Capability Development Document (CDD) is reached.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>

**E. Performance Metrics**

Milestone Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
1.1 System Engineering	WR	NSWC PC:Panama City, FL	2.982	2.565	Nov 2011	1.597	Oct 2012	-		1.597	Continuing	Continuing	Continuing
1.1 System Engineering	WR	NSWC DD:Dahlgren, VA	2.950	2.850	Nov 2011	1.228	Oct 2012	-		1.228	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	Northrop Grumman:Beth Page, NY	4.000	5.980	Jan 2012	1.196	Dec 2012	-		1.196	Continuing	Continuing	Continuing
1.1 System Engineering	WR	SPAWAR PAC:San Diego, CA	1.000	1.450	Nov 2011	1.134	Nov 2012	-		1.134	Continuing	Continuing	Continuing
1.1 System Engineering	WR	NUWC NPT:Newport, RI	0.500	1.800	Dec 2011	1.207	Oct 2012	-		1.207	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	CACI:Fairfax, VA	2.500	0.500	Jan 2012	0.137	Dec 2012	-		0.137	Continuing	Continuing	Continuing
1.1 System Engineering	C/CPFF	AAC:Uniontown, PA	-	-		7.317	Jan 2013	-		7.317	0.000	7.317	
1.1 System Engineering	WR	NSWC PHD:Port Hueneme, CA	-	1.362	Jan 2012	-		-		-	0.000	1.362	
1.4 Integration, Assembly, Test and Check	WR	NAWC AD:Patuxent River, MD	0.340	0.794	Nov 2011	0.486	Nov 2012	-		0.486	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Checkout	C/CPFF	Northrop Grumman:Beth Page, NY	-	-		0.857	Dec 2012	-		0.857	0.000	0.857	
1.4 Integration, Assembly, Test and Check	WR	SPAWAR PAC:San Diego, CA	0.994	0.235	Nov 2011	1.204	Nov 2012	-		1.204	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	NUWC NPT:Newport, RI	0.647	0.297	Dec 2011	0.202	Oct 2012	-		0.202	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	NSWC PC:Panama City, FL	-	2.000	Nov 2011	0.128	Oct 2012	-		0.128	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Gulfcoast:Pascagoula, MS	0.500	1.000	Feb 2012	0.543	Jan 2013	-		0.543	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Check	WR	SUPSHIP Bath:Bath, ME	0.500	1.000	Feb 2012	0.550	Jan 2013	-		0.550	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
1.4 Integration, Assembly, Test and Check	WR	NSWC DD:Dahlgren, VA	1.758	3.034	Nov 2011	0.768	Oct 2012	-		0.768	Continuing	Continuing	Continuing
1.4 Integration, Assembly, Test and Checkout	WR	NSWC PHD:Port Hueneme, CA	-	-		0.850	Oct 2012	-		0.850	0.000	0.850	
1.12 Common Equipment Development	WR	NSWC PC:Panama City, FL	68.070	10.892	Nov 2011	5.702	Oct 2012	-		5.702	Continuing	Continuing	Continuing
1.12 Common Equipment Development	C/CPFF	Northrop Grumman:Beth Page, NY	18.727	-		3.001	Dec 2012	-		3.001	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NUWC NPT:Newport, RI	7.829	-		0.840	Nov 2012	-		0.840	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NSWC DD:Dahlgren, VA	1.921	-		2.687	Oct 2012	-		2.687	Continuing	Continuing	Continuing
1.12 Common Equipment Development	WR	NAVAIR PMA266:Patuxent River, MD	4.500	2.000	Nov 2011	-		-		-	Continuing	Continuing	Continuing
1.13 MCM MP	WR	NSWC PC:Panama City, FL	116.600	16.296	Nov 2011	9.265	Oct 2012	-		9.265	Continuing	Continuing	Continuing
1.13 MCM MP	WR	NSWC CD:Little Creek, VA	-	6.000	Feb 2012	-		-		-	Continuing	Continuing	Continuing
1.13 MCM MP	Sub Allot	PMS 406:Various	-	-		14.337	Oct 2012	-		14.337	0.000	14.337	
1.14 ASW MP	Sub Allot	PEO IWS5:Various	-	-		20.547	Nov 2012	-		20.547	0.000	20.547	
1.14 ASW MP	WR	NUWC NPT:Newport, RI	-	-		3.650	Oct 2012	-		3.650	0.000	3.650	
1.14 ASW MP	WR	Various:Various	153.473	-		10.170	Dec 2012	-		10.170	Continuing	Continuing	Continuing
1.15 SUW MP	WR	NSWC DD:Dahlgren, VA	165.774	18.926	Nov 2011	41.194	Oct 2012	-		41.194	Continuing	Continuing	Continuing
1.15 SUW MP	WR	NSWC PHD:Port Hueneme, CA	6.000	2.500	Dec 2011	2.558	Oct 2012	-		2.558	Continuing	Continuing	Continuing
1.15 SUW MP	WR	SPAWAR PACIFIC:San Diego, CA	1.205	0.937	Nov 2011	1.117	Oct 2012	-		1.117	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
1.15 SUW MP	C/CPFF	Northrop Grumman: Beth Page, NY	-	-		10.995	Dec 2012	-		10.995	0.000	10.995	
1.16 MP-PCS Equipment	WR	Various: Various	3.547	-		-		-		-	Continuing	Continuing	Continuing
1.19 Pre-Production Engineering	WR	Various: Various	8.425	-		-		-		-	0.000	8.425	
1.1.7 System Engineering RAM-C Project	WR	Various: Various	-	1.500	Oct 2011	1.961	Nov 2012	-		1.961	0.000	3.461	
<b>Subtotal</b>			574.742	83.918		147.428		-		147.428			

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
1.5 Training	WR	NAWC TSD: Orlando, FL	6.933	2.887	Jan 2012	4.917	Jan 2013	-		4.917	Continuing	Continuing	Continuing
1.5 Training	WR	NSWC PC: Panama City, FL	10.823	4.715	Nov 2011	1.215	Oct 2012	-		1.215	Continuing	Continuing	Continuing
1.5 Training	WR	NSWC PHD: Port Hueneme, CA	2.900	2.500	Dec 2011	1.054	Dec 2012	-		1.054	Continuing	Continuing	Continuing
1.5 Training	C/CPFF	AAC: Uniontown, PA	4.000	3.800	Mar 2012	3.010	Jan 2013	-		3.010	Continuing	Continuing	Continuing
1.5 Training	C/CPFF	CACI: Fairfax, VA	-	-		0.576	Nov 2012	-		0.576	0.000	0.576	
1.5 Training	WR	CSCS: Dahlgren, VA	-	1.240	Feb 2012	0.843	Jan 2013	-		0.843	Continuing	Continuing	Continuing
1.5 Training	C/CPFF	Northrop Grumman: Beth Page, NY	-	-		1.934	Dec 2012	-		1.934	0.000	1.934	
1.5 Training	WR	CNSF: San Diego, CA	-	1.000	Feb 2012	1.100	Dec 2012	-		1.100	Continuing	Continuing	Continuing
1.6 Program Technical Data	WR	NSWC PC: Panama City, FL	-	1.082	Dec 2011	0.279	Nov 2012	-		0.279	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
1.6 Program Technical Data	C/CPFF	Northrop Grumman: Beth Page, NY	-	-		0.750	Dec 2012	-		0.750	0.000	0.750	
1.6 Program Technical Data	WR	CACI: Fairfax, VA	-	-		0.250	Dec 2012	-		0.250	0.000	0.250	
<b>Subtotal</b>			24.656	17.224		15.928		-		15.928			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
1.3 System Test and Evaluation	WR	NSWC PC: Panama City, FL	27.165	16.183	Nov 2011	10.275	Nov 2012	-		10.275	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	NSWC DD: Dahlgren, VA	24.500	4.000	Nov 2011	5.513	Nov 2012	-		5.513	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	NUWC NPT: Newport, RI	5.000	1.200	Dec 2011	-		-		-	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	NSWC PHD: Port Hueneme, CA	4.000	6.200	Dec 2011	5.852	Oct 2012	-		5.852	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	SPAWAR PAC: San Diego, CA	3.645	1.068	Nov 2011	0.894	Nov 2012	-		0.894	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	COMOPTEVFOR: Norfolk, VA	1.435	1.400	Jan 2012	0.248	Nov 2012	-		0.248	Continuing	Continuing	Continuing
1.3 System Test and Evaluation	WR	PMA 266: Patuxent River, MD	-	-		0.344	Jan 2013	-		0.344	0.000	0.344	
1.3 System Test and Evaluation	C/BA	Silver Ships: Theodore, AL	-	-		0.550	Jan 2013	-		0.550	0.000	0.550	
1.3 System Test and Evaluation	C/BA	CNSF: Norfolk, VA	-	-		0.264	Dec 2012	-		0.264	0.000	0.264	
1.3 System Test and Evaluation	C/BA	NAWC WD: Point Mugu, CA	-	-		2.420	Nov 2012	-		2.420	0.000	2.420	
<b>Subtotal</b>			65.745	30.051		26.360		-		26.360			

**UNCLASSIFIED**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy	DATE: February 2012
--	---------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

Management Services (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total		Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				
Acquisition Workforce	Various	Various:Various	1.047	-		-		-		-	0.000	1.047		
1.2 Program Management	C/CPFF	CACI:Fairfax, VA	25.688	6.403	Dec 2011	3.175	Nov 2012	-		3.175	Continuing	Continuing	Continuing	
1.2 Program Management	WR	NSWC PC:Panama City, FL	-	-		1.453	Oct 2012	-		1.453	Continuing	Continuing	Continuing	
1.2 Program Management	WR	NSWC DD:Dahlgren, VA	-	-		1.480	Oct 2012	-		1.480	Continuing	Continuing	Continuing	
<b>Subtotal</b>			26.735	6.403		6.108		-		6.108				
<b>Project Cost Totals</b>			691.878	137.596		195.824		-		195.824				

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy**

**DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**

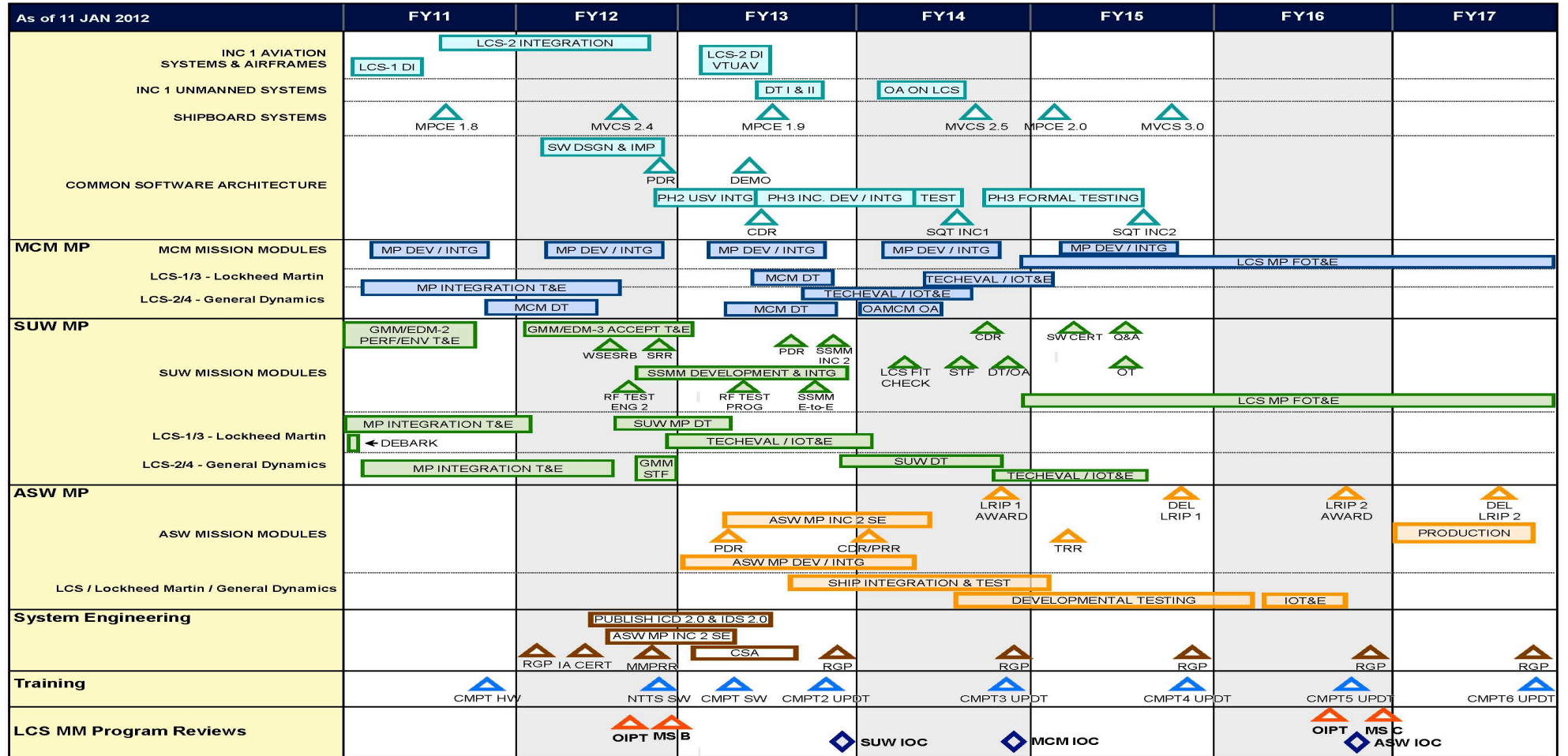
1319: *Research, Development, Test & Evaluation, Navy*  
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**

PE 0603581N: *Littoral Combat Ship (LCS)*

**PROJECT**

3129: *LCS Mission Package Development*





**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3129</b>				
MCM Aviation Systems and Airframe Integration (LCS 2)	3	2011	4	2012
MCM MP Integration T&E (LCS 2)	1	2011	3	2012
MCM MP Aviation Systems & Airframe Dynamic Interface Testing (LCS 2)	1	2013	2	2013
MCM MP DT (LCS 2)	4	2011	2	2012
MCM MP OAMCM Operational Assessment (LCS 2)	1	2014	2	2014
MCM MP DT (LCS 1)	2	2013	4	2013
MCM MP Shipboard System MVCS vs. 1.0.0 (SW 2.4) INSTALL	3	2012	3	2012
SUW MP GMM/EDM-3 Acceptance T&E	1	2012	1	2013
SUW MP DT (LCS 1)	3	2012	2	2013
SUW MP IOT&E (LCS 1)	4	2012	1	2014
SSMM SRR	4	2012	4	2012
MCM MP Tech Eval (LCS 2)	4	2013	3	2014
SUW MP Tech Eval (LCS 1)	4	2012	1	2014
MCM MP IOT& E (LCS 2)	3	2013	3	2014
SUW MP GMM Structural Test Fire	4	2012	4	2012
ASW MP Integration	1	2013	2	2014
ASW MP PDR	1	2013	1	2013
ASW MP Ship Integration & Test	3	2013	1	2015
MCM MP Unmanned Systems DT I & II	2	2013	3	2013
SSMM PDR	3	2013	3	2013
SUW MP DT (LCS 2)	4	2013	3	2014

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 3129: <i>LCS Mission Package Development</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ASW MP CDR/PRR	1	2014	1	2014
MCM MP Unmanned Systems Operational Assessment	1	2014	2	2014
MCM MP FOT&E	4	2014	4	2017
ASW LRIP 1 Award	4	2014	4	2014
ASW MP Developmental Testing	3	2014	1	2016
ASW MP TRR	1	2015	1	2015
ASW LRIP 1 Delivery	4	2015	4	2015
ASW MP IOT&E	2	2016	3	2016
ASW LRIP 2 Award	3	2016	3	2016
ASW LRIP 2 Delivery	3	2017	3	2017
SUW MP FOT&E	4	2014	4	2017
MVCS 2.5 Install	3	2014	3	2014
MVCS 3.0 Install	4	2015	4	2015
MCM MP DT Follow-on (LCS 2)	2	2013	4	2013

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>				<b>PROJECT</b>			
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603581N: <i>Littoral Combat Ship (LCS)</i>				4018: <i>Littoral Combat Ship Construction</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
4018: <i>Littoral Combat Ship Construction</i>	46.788	44.912	9.915	-	9.915	4.928	-	-	-	0.000	106.543
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Littoral Combat Ship (LCS) is a fast, agile, and networked surface combatant with capabilities optimized to defeat asymmetric threats, and assure naval and joint force access into contested littoral regions. It uses open-systems-architecture design, modular weapons, and sensor systems, and a variety of manned and unmanned vehicles to expand the battle space and project offensive power into the littoral. LCS operates with focused-mission packages that deploy manned and unmanned vehicles to execute a variety of missions, including littoral anti-submarine warfare (ASW), surface warfare (SUW), and mine countermeasures (MCM). LCS also possesses inherent capabilities, regardless of mission package installed, including Intelligence Surveillance Reconnaissance (ISR), homeland defense, Maritime Interdiction/Interception Operations (MIO), anti-terrorism/force protection (AT/FP), air self-defense, joint littoral mobility, and Special Operating Forces (SOF) and logistic support for movement of personnel and supplies.

This relatively small, high-speed surface combatant will complement the U.S. Navy's AEGIS fleet by operating in environments where it is less desirable to employ larger, multi-mission ships. It can deploy independently to overseas littoral regions, remain on station for extended periods of time either with a battle group or through a forward-basing arrangement, and is capable of underway replenishment. It will operate with Carrier Strike Groups, Surface Action Groups, in groups of other similar ships, or independently for diplomatic and presence missions. Additionally, it can operate cooperatively with the U.S. Coast Guard and Allies.

The LCS construction phase includes the construction of two LCS Flight 0 Class Ships, one each of two designs, and includes Government Furnished Equipment (GFE) for ships systems, Final System Design (FSD), Detail Design, introduction of final interface requirements for integration with mission packages from the Mission Systems and Ship Integration Team (MSSIT), and Outfitting and Post Delivery (OF/PD).

Data as of 9 January 2012:

USS Freedom (LCS 1)  
 Basic Construction: 521.0  
 Change Orders: 0.5  
 GFE: 12.0  
 Other: 3.5  
 Total Cost\*: 537.0

USS Independence (LCS 2)  
 Basic Construction: 635.0  
 Change Orders: 3.5

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 4018: <i>Littoral Combat Ship Construction</i>
---	--	--

GFE: 7.0  
 Other: 7.5  
 Total Cost\*: 653.0  
 Non End Cost Item: FSD/MSSIT 25.0 (LCS1), 54.0 (LCS2)  
 Non End Cost Item: OF/PD 108.4 (LCS1), 106.4 (LCS2)  
 FSD/MSSIT costs for USS Freedom and USS Independence are not true construction costs and are costs associated with design completion.  
 \* Does not include OF/PD and early design costs

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Outfitting and Post Delivery</p> <p><b>Description:</b> Provides for the completion of ship outfitting to include: (a) ship provisioning and fuel, (b) initial load-out of repair parts, spares, and test equipment in accordance with allowance list, (c) provision of technical manuals and required drawings, (d) installation and validation of PMS and EOSS, and (e) crew training and completion of ship system certification requirements.</p> <p>Provides for the integration and testing of the seaframe and mission packages. Implements instrumentation packages and validates structural, sea keeping, and hydrodynamic performance. Provides emergent support during the execution of Post Delivery Test &amp; Trials (PDT&amp;T) and Post-Shakedown Availability (PSA). Incorporates Engineering Change Proposals (ECPs) to correct trial card deficiencies, and mission critical upgrades (as required).</p> <p><b>FY 2011 Accomplishments:</b>                      For USS Freedom (LCS 1):                      Continued PSA planning to include engineering efforts, work package development, and procurement of long-lead materials. Assigned projected work items into one of two separate PSA periods (PSA 1 and PSA 2) for USS Freedom. Performed emergent repairs in support of PDT&amp;T. Conducted PSA 1 to include dry-docking, correction of trial card discrepancies, engineering changes, and equipment repairs.</p> <p>For USS Independence (LCS 2):                      Planned and executed an Industrial Post Delivery Availability (IPDA 3) accomplishing critical work in preparation for possible ship deployment. Began PSA planning to include engineering efforts, work package development, and procurement of long-lead materials. Performed emergent repairs in support of PDT&amp;T.</p> <p><b>FY 2012 Plans:</b>                      For USS Freedom (LCS 1):                      Perform emergent repairs in support of PDT&amp;T. Continue PSA 2, to complete remaining trial card corrections, engineering changes, and equipment repairs.</p>	<p>46.788</p> <p align="right"><b>Articles:</b></p> <p align="right">0</p>	<p>44.912</p> <p align="right">0</p>	<p>9.915</p> <p align="right">0</p>

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 4018: <i>Littoral Combat Ship Construction</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p>For USS Independence (LCS 2): Perform emergent repairs in support of PSA 1 PDT&amp;T including dry-docking, trial card corrections, engineering changes, and equipment repairs.</p> <p><b>FY 2013 Plans:</b> For USS Freedom (LCS 1): Correct seaframe deficiencies identified during remaining mission package Development and Operational Testing (DT/OT) and emergent repairs.</p> <p>For USS Independence (LCS 2): Provide advance planning, material procurement and kitting, design and engineering, technical support and documentation, testing, logistics support, and production labor for PSA 2. Correct seaframe deficiencies identified during mission package DT/OT and emergent repairs. Complete FCT and provide technical support for the INSURV Board.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	46.788	44.912	9.915

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2013</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To</b>	
			<b>Base</b>	<b>OCO</b>	<b>Total</b>					<b>Complete</b>	<b>Total Cost</b>
• 2127: <i>Littoral Combat Ship</i>	1,241.477	1,755.093	1,784.959	0.000	1,784.959	1,819.575	1,881.485	1,012.988	896.027	17,452.124	30,278.049
• 1600: <i>LCS Modules</i>	41.145	63.448	31.319	0.000	31.319	46.037	30.979	14.729	18.595	Continuing	Continuing
• 0443: <i>Aircraft Procurement, Navy</i>	58.732	191.986	124.573	0.000	124.573	129.003	114.750	124.510	94.990	Continuing	Continuing
• 5110: <i>Outfitting/Post Delivery</i>	4.678	49.013	60.053	0.000	60.053	76.393	132.715	133.787	209.986	663.574	1,332.956
• 1320: <i>LCS Training</i>	0.000	20.709	20.640	0.000	20.640	32.924	16.513	17.983	23.191	Continuing	Continuing
• 0944: <i>LCS Class Support Equipment</i>	0.000	0.000	19.865	0.000	19.865	21.278	35.469	36.640	60.800	Continuing	Continuing
• 0981: <i>Items Under \$5M</i>	8.244	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.703
• 1601: <i>MCM Mission Module Equipment</i>	0.000	0.000	38.932	0.000	38.932	68.926	185.056	219.850	219.852	Continuing	Continuing
• 1602: <i>ASW Mission Module Equipment</i>	0.000	0.000	0.000	0.000	0.000	0.000	3.436	23.612	44.754	Continuing	Continuing
• 1603: <i>SUW Mission Module Equipment</i>	0.000	0.000	32.897	0.000	32.897	37.260	40.098	46.342	67.630	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 4018: <i>Littoral Combat Ship Construction</i>
---	--	--

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 4221: <i>LCS Module Weapons</i>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	28.100	Continuing	Continuing

**D. Acquisition Strategy**

The LCS program takes an evolutionary approach to acquisition that emphasizes competition as a key to achieving affordability. Initially, two industry teams competed against each other with two distinctly different LCS designs. The decision produced two flights with a vessel from each design: Flight 0 (LCS 1 and LCS 2); and Flight 0+ (LCS 3 and LCS 4). The Flight 0+ baseline incorporates lessons learned from the design, construction, and testing of the Flight 0 ships. The Navy conducted a limited competition amongst the existing LCS industry teams or team participants for the award of a contract for the construction of a block buy of up to ten (10) LCS Flight 0+ Class ships, with an objective of competitively awarding a single contract to a single industry team.

By Acquisition Decision Memorandum of December 23, 2010, the USD (AT&L) authorized execution of an alternative acquisition strategy for the FY 2010 through FY 2015 procurement of 20 seaframes through two ten-ship block buy contracts. On December 29, 2010, the Navy awarded two contracts for block buys of up to ten ships, beginning with the award to each contractor of one FY 2010 ship and associated non-recurring engineering, the development of the Technical Data Package (TDP), core class services, and associated data. This will be followed with the contractual funding of one ship to each contractor in FY 2011 followed by two ships each funded in FY 2012 through FY 2015.

**E. Performance Metrics**

The LCS Program achieved Milestone A and Program Initiation in May 2004, and underwent a Milestone A update in FY09. Milestone B was achieved in February 2011. Milestone C is planned for mid-2012.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 4018: <i>Littoral Combat Ship Construction</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
LCS Ship 1 Construction	C/CPAF	Lockheed Martin:Moorestown, NJ	521.000	-		-		-		-	0.000	521.000	521.000
LCS Ship 1 Change Orders	C/CPAF	Lockheed Martin:Moorestown, NJ	0.500	-		-		-		-	0.000	0.500	0.500
LCS Ship 1 GFE	C/CPAF	Lockheed Martin:Moorestown, NJ	12.000	-		-		-		-	0.000	12.000	12.000
LCS Ship 2 Construction	C/CPAF	General Dynamics:Bath, ME	635.000	-		-		-		-	0.000	635.000	635.000
LCS Ship 2 Change Orders	C/CPAF	General Dynamics:Bath, ME	3.500	-		-		-		-	0.000	3.500	3.500
LCS Ship 2 GFE	C/CPAF	General Dynamics:Bath, ME	7.000	-		-		-		-	0.000	7.000	7.000
LCS Ship 1 FSD/MSSIT	C/CPAF	Lockheed Martin:Moorestown, NJ	25.000	-		-		-		-	0.000	25.000	25.000
LCS Ship 2 FSD/MSSIT	C/CPAF	General Dynamics:Bath, ME	54.000	-		-		-		-	0.000	54.000	54.000
Initial Outfitting/Logistics	Various	Various:Various	21.601	-		-		-		-	0.000	21.601	21.601
Test and Trials	WR	Various:Various	32.013	8.412	Oct 2011	2.500	Nov 2012	-		2.500	0.000	42.925	
Post Delivery ECP	C/CPAF	Lockheed Martin - General Dynamics:Various	46.957	0.500	Oct 2011	0.400	Oct 2012	-		0.400	0.000	47.857	57.457
PSA/PSA Planning/INSURV/OPTAR	WR	Various:Various	60.254	36.000	Oct 2011	7.015	Oct 2012	-		7.015	0.000	103.269	
<b>Subtotal</b>			1,418.825	44.912		9.915		-		9.915	0.000	1,473.652	

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Travel	WR	SUPSHIP:Various	0.460	-		-		-		-	0.000	0.460	
Other Program Costs	WR	Various:Various	11.000	-		-		-		-	0.000	11.000	





**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2013 Navy</b>		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: Littoral Combat Ship (LCS)	<b>PROJECT</b> 4018: Littoral Combat Ship Construction

	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>FY14</b>
<b>Ship Procurement Profile</b>	2	4	4	4
<b>LCS 1 (LM)</b>				△ IOC
<b>Flight 0</b>				
<b>LCS 2 (GD)</b>				
<b>LCS Program Acquisition Reviews</b>	 Seaframe MS B	 Mission Module MS B Seaframe MS C	 MM MS C	

<b>Acronyms</b>	LCS: Littoral Combat Ship ASW: Anti-Submarine Warfare MCM: Mine Countermeasure SUW: Surface Warfare MP: Mission Package	DT: Developmental Testing IOT&E: Initial Operational Test & Evaluation FOC: Initial Operational Capability IPDA: Industrial Post-Delivery Availability PSA: Post Shakedown Availability	SF: Seaframe FCT: Final Contract Trials CMAV: Continuous Maintenance Availability OT: Operational Test SAR: Survivability Assessment Report
-----------------	---	---	---

As of 9 January 2012

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 4018: <i>Littoral Combat Ship Construction</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 4018</b>				
Milestone B	2	2011	2	2011
LCS 1 PSA 1	4	2011	1	2012
LCS 1 Final Contract Trials	2	2012	2	2012
LCS 1 PSA 2	4	2012	4	2012
LCS 2 IPDA	2	2011	2	2011
LCS 2 Transit (XSIT) 1 (Fleet Cost)	2	2012	2	2012
LCS 2 PSA 1	4	2012	1	2013
LCS 2 Final Contract Trials	2	2013	2	2013
LCS 2 PSA 2	4	2013	4	2013
LCS 2 Transit (XSIT) 2 (Fleet Cost)	4	2013	4	2013
Milestone C	2	2012	2	2012

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	11.939	10.000	-	-	-	-	-	-	-	0.000	21.939
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Provides resources to support both LCS Mission Package Development.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2011	FY 2012
<p><b>Congressional Add:</b> MIW Modules Prog - Cong</p> <p><b>FY 2011 Accomplishments:</b> Due to the oil spill in the Gulf of Mexico in 2010, LCS Mission Module testing planned for Panama City Florida had to be moved to the east coast of Florida. Provided funding to cover additional costs associated with the testing disruption, including moving the testing range and delays in performing the actual work as well as increased costs associated with Mine Countermeasures Developmental Testing (DT).</p> <p>Established a next generation LCS test bed, which supports development, demonstration, testing and evaluation of critical technologies to enable rapid introduction of advance warfighting capabilities and workload reduction initiatives required by the LCS mission packages. Deliverables include: a next generation LCS test bed based on Service-Oriented Architecture (SOA); demonstration of the ease of inserting a SOA-based C2 product such as MCM Supervision of Unmanned Vehicle Mission Management by Interactive Teams (SUMMIT) or USW-DSS with documented metrics in Demonstration Report ; and a prototype of SOA-based Unmanned System Control System for future LCS unmanned systems (surface and underwater vehicles).</p>	11.939	-
<p><b>Congressional Add:</b> LCS MM SBIR (Cong)</p> <p><b>FY 2012 Plans:</b> Continue development of a next generation LCS test bed, which supports development, demonstration, testing and evaluation of critical technologies to enable rapid introduction of advance warfighting capabilities and workload reduction initiatives required by the LCS mission packages. Deliverables include: a next generation LCS test bed based on Service-Oriented Architecture (SOA); demonstration of the ease of inserting a SOA-based C2 product such as MCM Supervision of Unmanned Vehicle Mission Management by Interactive Teams (SUMMIT) or USW-DSS with documented metrics in Demonstration Report ; and a prototype</p>	-	10.000

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603581N: <i>Littoral Combat Ship (LCS)</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>
of SOA-based Unmanned System Control System for future LCS unmanned systems (surface and underwater vehicles).		
<b>Congressional Adds Subtotals</b>	11.939	10.000

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

Congressional Adds.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	33.323	34.123	56.551	-	56.551	36.592	32.827	33.569	34.157	Continuing	Continuing
0164: <i>Combat System Integration</i>	23.374	23.459	41.854	-	41.854	21.331	19.969	20.119	20.515	Continuing	Continuing
2865: <i>WIDEBAND OPTICALLY MUTIPLIED BEAMFORMING ARCH</i>	-	0.001	-	-	-	-	-	-	-	0.000	0.001
3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>	-	0.593	4.561	-	4.561	5.096	4.668	5.139	5.169	Continuing	Continuing
9999: <i>Congressional Adds</i>	9.949	-	-	-	-	-	-	-	-	0.000	9.949
9B88: <i>Automated Test and Re-Test</i>	-	10.070	10.136	-	10.136	10.165	8.190	8.311	8.473	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Chief of Naval Operations (CNO) created the Navy's Strike Force Interoperability (SFI) Program in 1998 in response to critical shortfalls in the introduction of integrated and interoperable system of systems to deploying Strike Forces. Naval Sea Systems Command (NAVSEA) acts as management lead for Joint System Command (SYSCOM) system certification policy and guidance and certifies platforms for interoperability within the platform and throughout the enterprise, in accordance with Commander, US Fleet Forces Command/Commander, Pacific Fleet (COMUSFLTFORCOM/COMPACFLT) Inst. 4720.3B (OCT 2008), C5ISR Modernization Policy. COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B also requires that NAVSEA act as administrative agent for COMNAVNETWARCOM Command and Control, Communications, Computers, and Combat Systems Integration Modernization Process (C5IMP) and execution agent for Navy Command and Control, Communications, Computers, and Combat Systems Integration (C5I) Modernization Conferences (NCCM). This program conducts Interoperability Assessments that are required to certify Aircraft Carriers, Amphibious Assault Ships, and Surface Combatants in accordance with the Naval Warfare System Certification Policy (NWSCP), NAVSEAINST 9410.2, NAVAIR 5230.20, SPAWAR 5234.1.

The SFI Program ensures overall strike force interoperability is characterized and assessed. NAVSEA is assigned central United States Navy (USN) responsibility for interoperability, directing the development of policy and architecture for Strike Force warfare systems engineering and implementation of a common warfare systems engineering process. There are three priorities within the Strike Force Interoperability Program: 1) Support Fleet As-Is state which includes Navigation System Certification (NAVCERT), Interoperability Capabilities & Limitations, and Interoperability Tactical Information Coordinator Technical Aids (TIC TECHAIDs); 2) Ship system modernization (non-HME) including warfighting capability & other C5I upgrades. This includes C5IMP Baseline Management and Non-Aegis Combat System Integration Testing; and 3) Ship Warfare System Certification & Force Level Assessments. This includes Warfare Certification, Interoperability Certification, and Force Level Interoperability Assessments.

In addition to these core efforts, this program also aims to improve the efficiency of testing processes through the Automated Test and Retest (ATRT) program and engages in efforts designed to ensure the U.S. Navy is interoperable with Joint and Coalition forces through the Maritime Theater Missile Defense (MTMD).

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>
---	---

Budget exhibit has been updated to reflect recommendations, findings and requirements of the Flag Certification Task Force conducted October - November 2010.

Project 0164: Combat System Integration:

This project consist of five key pillars executed within the SFI program, beginning in FY13: 1) Command & Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) and Fleet Readiness. The C5IMP validates the introduction of new systems into the Fleet and ensures system maturity prior to installation, thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups; 2) Warfare Systems Certification, which is essential to validating the maturity and operational performance of warfare systems prior to fleet delivery and deployment; 3) Navigation Certification (NAVCERT) and Electronic Charting and Display System - Navy (ECDIS-N) certification, which certifies ship electronic charting capability and certifies the accurate transmission of navigation data to combat and weapons systems; 4) Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), which is essential in the identification of critical integration and interoperability issues. CSIT also provides Objective Quality Evidence (OQE) for warfare system certification decisions for installation and deployment; and 5) Interoperability Certification and Assessment, the independent assessment of Strike Group Warfare Systems operational performance. Interoperability Assessments examine force level engagement threads, aircraft control, air battle-space management, and operational displays. Assessments of deploying ships in Strike Force configurations are accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which is the cornerstone for the Distributed Integration & Interoperability Assessment Capability (DIIAC) Concept. It is a U.S. Fleet Forces Command and Commander In Chief, U.S Pacific Fleet (CINCPACFLT) requirement that all Strike Forces undergo Interoperability Assessment testing in the DEP prior to deployment. Interoperability Certification results are used to develop fleet tactical tools (Capabilities & Limitations (C&L) and Tactical Information Coordinator Technical Aids (TIC TECHAIDs)), which ensure that operators understand the interoperability capabilities and limitations of their combat systems.

Project 3312: Maritime Theater Missile Defense Forum (MTMD):

This project funds participation in the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended in 2009). Known as the Maritime Theater Missile Defense (MTMD) forum, it promotes interoperability with the Navies of nine participating nations. This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project.

The MTMD forum provides protection against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the creation of an interoperable sea-based defense capability among coalition nations. This includes protection across the full spectrum of these threats through the enhanced utilization of existing sea-based systems to protect against current threats while progressively improving and developing systems and system-of- systems to effectively counter evolving threats.

MTMD supports USN participation in several MTMD related Project Arrangements and Working Groups including:

- (1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures as well as to perform engineering to address coalition capability gaps.
- (2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.
- (3) Coalition Distributed Engineering Plant (CDEP) to establish and maintain a maritime coalition Hardware-in-the-Loop Testbed and to conduct CDEP testing.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>
---	---

- (4) Open Architecture (OA) to develop Interface Standards and Data Models.
- (5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.
- (6) Operational Requirements (OR) to develop a Coalition Maritime Missile Defense Operational Concept Document and to identify operational constraints and tactical constructs surrounding coalition maritime missile defense activities.
- (7) Coalition Supersonic Sea-Skimming Targets (CSSST) to evaluate the conversion of excess TERRIER Missiles into low cost targets.
- (8) Next Generation Infrared Search and Track (IRST) to evaluate and commercial-based technologies to develop a passive IRST sensor system in support of coalition maritime missile defense operations.

**Project 9B88: Automated Test and Retest (ATRT):**

The Navy, through Automated Test and Re-Test (ATRT) is developing an automated test/analysis capability, which is applicable at phases within system development and integration which provides reproducible and quantitative evaluation of system performance with reduced levels of effort and schedule in order to support one of the Navy's priority initiatives of reduction of Total Ownership Cost (TOC). Funding will provide additional work towards ongoing testing and analysis efforts within the Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), AEGIS Combat System Advanced Capability Build (ACB) 12, Antisubmarine Warfare Integrated Common Processor/ Acoustic Rapid Commercial Off The Shelf (COTS) Insertion, the Littoral Combat Ship (LCS) Mission Module development and other major acquisition programs. In addition, funding will support the development of standards, specifications, and guidance to facilitate NAVSEA-affiliated programs' adoption of this TOC-reducing discipline and technology. ATRT is executed under Congressional Adds Project 9999 in FY11. Beginning in FY12, ATRT will be executed in Project 9B88 (Automated Test and Re-Test).

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	24.344	34.157	33.517	-	33.517
Current President's Budget	33.323	34.123	56.551	-	56.551
Total Adjustments	8.979	-0.034	23.034	-	23.034
• Congressional General Reductions	-	-0.034			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.840	-			
• Program Adjustments	-	-	23.355	-	23.355
• Rate/Misc Adjustments	-	-	-0.321	-	-0.321
• Congressional General Reductions Adjustments	-0.181	-	-	-	-
• Congressional Add Adjustments	10.000	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>
---	---

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *AUTOMATED TEST AND RE-TEST*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2011	FY 2012
	9.949	-
	9.949	-
	9.949	-



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0164: <i>Combat System Integration</i>	23.374	23.459	41.854	-	41.854	21.331	19.969	20.119	20.515	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Project 0164: Combat System Integration:

Budget exhibit has been updated to reflect recommendations and findings of the Flag Certification Task Force conducted October - November 2010.

This project funds the Strike Force Interoperability Program through the following pillars: 1) Command & Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) and Fleet Readiness. The C5IMP validates the introduction of new systems into the Fleet and ensures system maturity prior to installation, thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups; 2) Warfare Systems Certification, which is essential to validating the maturity and operational performance of warfare systems prior to fleet delivery and deployment; 3) Navigation Certification (NAVCERT) and Electronic Charting and Display System - Navy (ECDIS-N) certification, which certifies ship electronic charting capability and certifies the accurate transmission of navigation data to combat and weapons systems; 4) Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), which is essential in the identification of critical integration and interoperability issues. CSIT also provides Objective Quality Evidence (OQE) for warfare system certification decisions for installation and deployment; and 5) Interoperability Certification and Assessment, the independent assessment of Strike Group Warfare Systems operational performance. Interoperability Assessments examine force level engagement threads, aircraft control, air battle-space management, and operational displays. Assessments of deploying ships in Strike Force configurations are accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which is the cornerstone for the Distributed Integration & Interoperability Assessment Capability (DIIAC) Concept. It is a U.S. Fleet Forces Command and Commander In Chief, U.S Pacific Fleet (CINCPACFLT) requirement that all Strike Forces undergo Interoperability Assessment testing in the DEP prior to deployment. Interoperability Certification results are used to develop fleet tactical tools (Capabilities & Limitations (C&L) and Tactical Information Coordinator Technical Aids (TIC TECHAIDs)), which ensure that operators understand the interoperability capabilities and limitations of their combat systems.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Platform/Strike Force Certification	11.517	-	-
<b>Articles:</b>	0		
<b>Description:</b> This program conducts Interoperability Assessments that are required to certify Aircraft Carriers, Amphibious Assault Ships, and Surface Combatants in accordance with the Naval Warfare System Certification Policy (NWSCP), NAVSEAINST 9410.2, NAVAIR 5230.20, SPAWAR 5234.1 and U.S. Fleet Forces Command instruction 4720.3B. Using the Distribution Engineering Plant (DEP), this effort provides the Navy's only means to test Strike Force combat systems and associated Command, Control, Communications, Computers, and Intelligence (C4I) prior to deployment. All DEP efforts related to Platform/Strike Force Certification are funded in this article in FY11.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Interoperability Assessments to be funded under Interoperability Certification and Assessment pillar beginning in FY12. Certification decisions to be funded under Warfare System Certification pillar beginning in FY12.</p> <p><b>FY 2011 Accomplishments:</b> Conducted Interoperability Assessments for 26 certification decisions involving Aircraft Carriers, Amphibious Assault Ships and Surface Combatants. In addition to crew support materials, this testing is required to enable early identification of critical interoperability issues involving the Cooperative Engagement Capability (CEC) and LINK 16. This afforded the systems engineering community the opportunity to impose software corrections and address design deficiencies prior to fleet delivery.</p>				
<p><b>Title:</b> Fleet Response Plan (FRP)</p> <p><b>Description:</b> This program is required to support the fleet C5I Modernization Policy, per Commander Fleet Forces Command (CFFC) 4720.3B, providing upfront systems engineering, configuration management, waterfront training and support for the entire surface Navy.</p> <p>C5I Modernization efforts to be funded under Command, Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) pillar beginning in FY12. Capabilities &amp; Limitations (C&amp;L) and TIC TECHAID to be funded under Interoperability Certification &amp; Assessment pillar beginning in FY12.</p> <p><b>FY 2011 Accomplishments:</b> Provided waterfront support for all CSGs and ARGs throughout the inter-deployment cycle, including preparations for deployment of 6 CSGs, 3 ARGs and about 40 independent deployers during FY11. Facilitated the completion of C5I installations during approximately 100 Chief of Naval Operation (CNO) availabilities in FY 11. Provided C&amp;L documents for 65 Strike Groups and 110 Naval Air Squadrons (covering F/A-18s, E-2Cs, MH-60s, EA-6Bs and P-3s). TIC TECHAIDs were delivered for 35 SG ships and 30 independent ships.</p>		5.396 0	-	-
<p><b>Title:</b> Combat Systems Certification Support of Platform Certification</p> <p><b>Description:</b> This program funds Land-based Test Sites to conduct integration testing of Combat Systems for purposes of characterizing, certifying and deploying Combat Systems on Carriers and Large Deck Amphibious naval platforms.</p> <p>Integration and interoperability testing to be funded under Combat Systems Integration Testing (CSIT) pillar, formally known as Warfare Systems Integration and Interoperability Testing (WSI2T) beginning in FY12.</p>		2.442 0	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b><i>FY 2011 Accomplishments:</i></b> Program conducted integration and interoperability testing for CVN 75 and accelerated testing for CVN 71/76, and CVN 69/70/77 major platforms.				
<b><i>Title:</i></b> Navigation System Certification (NAVCERT)				
<b><i>Description:</i></b> NAVSEAINST 9420.4 dated May 02 requires that a Navigation System Certification (NAVCERT) be performed for all initial installation/new construction, major overhaul/modification/repair when it is determined to impact the accuracy of navigation data, changes to the navigation baseline configuration, greater than six months ship availability, or elapsed time of more than five (5) years since previous NAVCERT. These project funds assessments are in support of NAVCERT associated with modernizations and/or new capability upgrades. A NAVCERT certifies to NAVSEA, Ship Program Managers (SPMs), Type Commanders (TYCOMs), and the Fleet that shipboard navigation systems are: properly installed and in good physical condition, operating to specified accuracy and requirements. A NAVCERT certifies ship electronic charting capability and verifies the accurate transmission of navigation data to combat and weapons systems. A successful NAVCERT is required for Warfare Systems Certification Decisions (WSCD), TOMAHAWK Weapons System (TTWCS) Certifications, Precision Approach Landing Systems (PALS) Certifications, and Electronic Charting and Display System-Navy (ECDIS-N) Certification.				
<b><i>FY 2011 Accomplishments:</i></b> Plans are to perform 25 NAVCERTs on cruisers, destroyers, carriers, and amphibians and will update NAVSEA Instruction 9420.4A to incorporate fleet input and lessons learned in FY10.				
<b><i>FY 2012 Plans:</i></b> Plans are to perform 22 NAVCERTs on cruisers, destroyers, carriers, and amphibians based on the finding of the Flag Certification Task Force.				
<b><i>FY 2013 Plans:</i></b> Plans are to perform 24 NAVCERTs on cruisers, destroyers, carriers, and amphibians based on the finding of the Flag Certification Task Force.				
<b><i>Title:</i></b> DEP Engineering and Operations				
<b><i>Description:</i></b> Distributed Engineering Plant (DEP) Engineering and Operations performs systems engineering, and operations functions to ensure DEP infrastructure supports testing of combat system baselines. The program conducts systems engineering				
<b><i>Articles:</i></b>		0.725 0	0.615 0	1.260 0
<b><i>Articles:</i></b>		3.294 0	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
to identify simulation/stimulation requirements necessary to achieve required fidelity for DEP testing at Navy laboratory sites through Verification, Validation and Accreditation (VV&A).				
DEP Engineering and Operations support to be funded under Interoperability Certification and Assessment in pillar beginning in FY12.				
<b>FY 2011 Accomplishments:</b> Program conducted one Interoperability Assessments: (SSDS O8.06.X) along with two(2) System Engineering Events (SEEs) in order to facilitate development testing for Aegis ACB 12 and validation of Surface Warfare Development Group Tactics, Techniques, and Procedures for deploying Carrier Strike Groups. Conducted improvements and updates to the DEP plant via two (2) Verification, Validation, and Accreditation (VV&A) events: Gateway Terminal Emulator/Common Connectivity Device/ Distributed Interactive Simulation (GTE/CCD/DIS) updates and associated VV&A to support U.S. and coalition requirements.				
<b>Title:</b> Command, Control, Communications, Computer, Combat Systems, and Intelligence Modernization Process (C5IMP) and Fleet Readiness (C5ISR)		-	2.415 0	6.690 0
<b>Articles:</b>				
<b>Description:</b> This program is required to support the fleet C5ISR Modernization Policy, per COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B, validates the introduction of new systems into the Fleet and ensures system maturity prior to installation, thereby reducing risk and enhancing readiness and effectiveness of deploying ships and strike groups. Project Engineers (PEs) and System Engineers (SEs) identify and analyze integration and interoperability issues in a Strike Group context, assessing operational impacts against fleet requirements, capabilities, and limitations and providing recommendations for resolution. On-Site Representatives (OSRs) are embedded with the FLTCDRs and TYCOMs and are utilized to address, coordinate and resolve C5IMP modernization issues.				
Funded under Fleet Response Plan (FRP) in prior years.				
<b>FY 2012 Plans:</b> Provide waterfront support for all CSGs and ARGs throughout the inter-deployment cycle, including preparations for deployment of 6 CSGs, 4 ARGs and about 35 independent deployers during FY12. Facilitate completion of C5I installations during approximately 100 CNO availabilities in FY 12.				
<b>FY 2013 Plans:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Provide waterfront support for all CSGs and ARGs throughout the inter-deployment cycle, including preparations for deployment of 6 CSGs, 3 ARGs and about 40 independent deployers during FY13. Facilitate completion of C5I installations during approximately 100 CNO availabilities in FY 13. Support 3 NCMCs and 12 monthly baselining events.				
<p><b>Title:</b> Combat System Integration Testing (CSIT)</p> <p><b>Articles:</b></p> <p><b>Description:</b> This program funds Land-based Test Sites to conduct integration testing of Non-Aegis Combat Systems for purposes of characterizing, certifying and deploying Combat Systems on Carriers and Large Deck Amphibious naval platforms. Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), is essential in the identification of critical integration and interoperability issues. CSIT also provides Objective Quality Evidence (OQE) for warfare certification decisions for installation and deployment.</p> <p>Funded under Combat Systems Certification Support of Platform Certification in prior years.</p> <p><b>FY 2012 Plans:</b> Program plans to conduct integration and interoperability testing for two major platforms: LHD 7/8 and LPD 22/23 (shifted CVN 69 testing to FY11 to allow LPD 22/23 test in FY12).</p> <p><b>FY 2013 Plans:</b> Program plans to conduct integration and interoperability testing for eight (8) anticipated major configuration changes.</p>		-	2.720 0	4.954 0
<p><b>Title:</b> Interoperability Certification and Assessment</p> <p><b>Articles:</b></p> <p><b>Description:</b> In order for the Fleet to have confidence in the warfare systems performance of its Strike Force platform configurations prior to deployment, NAVSEA provides Strike Force Interoperability Certification and Assessments. This program focuses on new systems and platforms under development. Interoperability Assessments of deploying ships in Strike Force configurations is accomplished through the utilization of the Navy's Distributed Engineering Plant (DEP), which provides operational configurations for all naval combat systems located at multiple Navy land-based sites located across the country and connected via networking technology. It is a U.S. Fleet Forces Command requirement that all Strike Forces undergo Interoperability Assessment testing in the DEP prior to deployment. The DEP provides the only opportunity for comprehensive interoperability testing of combat system and C5I configuration items prior to shipboard delivery for operational use in surface combatant platforms and strike group units. Further, the DEP provides the mechanism to support the surface Navy's participation in the Joint testing environments as well as the MTMD Coalition forces interoperability testing. The Distributed Integration &amp; Interoperability Assessment Capability (DIIAC) will leverage the existing DEP (facilities, skilled resources, live assets, and network connectivity) and ATRT applications to test and assess battle force interoperability. The results of DEP testing feed into the</p>		-	11.544 0	20.950 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>development of fleet tactical tools (Capabilities &amp; Limitations (C&amp;L) and Tactical Information Coordinator Technical Aids (TIC TECHAIDs)), which ensure that operators understand the interoperability capabilities and limitations of their combat systems. C&amp;L are delivered for Strike Groups and their Coalition and Joint partners.</p> <p>Funded under Platform/Strike Force Certification, Fleet Response Plan (FRP), and DEP Engineering and Operations in prior years.</p> <p><b>FY 2012 Plans:</b> Program plans to support three (3) Interoperability Assessments as determined by Interoperability Certification Committee (ICC) and three (3) SEEs in support of CVN-78 and Joint Interoperability in support of combat system developmental testing and validation of Fleet operational and training requirements. Facilitate completion of C5I installations during approximately 100 CNO availabilities in FY 12. Provide C&amp;L documents for 65 Strike Groups comprised of 237 ships and 110 Naval Air Squadrons (covering F/A-18s, E-2Cs, MH-60s, EA-6Bs and P-3s). TIC TECHAIDs will be delivered for 35 SG ships, 30 independent deploying ships and 4 Land Based Sites.</p> <p><b>FY 2013 Plans:</b> Program plans to support four (4) Interoperability Assessments in support of deploying strike groups including the deployment of new combat system baselines (ACB12 and SSDS), three (3) SEEs (SEE 13-1, SEE 13-2, SEE 13-3), and two (2) VV&amp;A events. Provide C&amp;L documents for 65 Strike Groups comprised of 237 ships and 110 Naval Air Squadrons (covering F/A-18s, E-2Cs, MH-60s, EA-6Bs and P-3s). TIC TECHAIDs will be delivered for 35 SG ships, 30 independent deploying ships, and 4 Land Based Sites.</p>				
<p><b>Title:</b> Warfare Systems Certification</p> <p><b>Description:</b> As directed by COMUSFLTFORCOM/COMPACFLT Inst. 4720.3B, C5ISR Modernization Policy, and in accordance with NAVSEAINST 9410.2, Naval Warfare System Certification Policy (NWSCP), NAVSEA will conduct Warfare Systems Certification against set criteria that includes operational risk assessments, using Objective Quality Evidence (OQE) to ensure installation readiness and deployment readiness of warfare systems and Navy surface platforms. OQE is obtained through testimony of subordinate activities and/or independent testing.</p> <p>NAVSEA accomplishes these efforts through Warfare Systems Certification Readiness Reviews (WSCRR), Warfare Systems Installation Authorizations (WSIA), and Warfare Systems Certification Decisions (WSCD) to support the installation and deployment of warfare systems in Navy surface platforms. The purpose of the WSCRR is to review and approve the Warfare System Certification Plan (WSCP), monitor warfare systems against the WSCP and monitor satisfaction of established criteria to facilitate a WSIA and WSCD. The purpose of the WSIA is to provide an early assessment of risk and characterization of the</p>		-	6.165 0	8.000 0
		<b>Articles:</b>		

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

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

	FY 2011	FY 2012	FY 2013
<p>warfare systems maturity and readiness to support sail-away and any shipboard test and training events for New Construction (NC) phase, Refueling Complex Overhaul (RCOH) or lead ships that are test platforms for major modernization effort and/or an assessment to support an authorization for installation of the warfare system(s) for in-service platforms. The purpose of the WSCD is to provide warfare systems certification including an assessment of risk and characterization of the warfare systems maturity and readiness to support deployment. A NAVSEA certification decision message is released following the WSCD, which includes an operational risk assessment characterizing warfare systems maturity and readiness to support the subject ship's deployment. This program is also required to ensure that aggregate deficiencies and workarounds do not render the operator ineffective.</p> <p>Strike Force Interoperability Officers (SFIOs) provide waterfront support to the Strike Groups by identifying, communicating, and resolving interoperability and modernization issues key to Strike Group readiness.</p> <p>Warfare Systems Certification funded under Platform/Strike Force Certification in prior years. SFIOs funded under Fleet Response Plan (FRP) in prior years.</p> <p><b>FY 2012 Plans:</b> Support 30 certification events, and will validate corrections of CEC/LINK 16 deficiencies prior to their installation in CGs and DDGs. Platform Certification Decision (PCDs) will involve CVN 78, CGs, DDGs, and amphibious assault ships.</p> <p><b>FY 2013 Plans:</b> Support approximately 110 Warfare Systems Certification Events (WSCRRs, WSIAAs, and WSCDs). Warfare Systems Certification Decision will involve CVNs, CGs, DDGs, ACB12, and amphibious assault ships. Support increase in number of Warfare System Certification criteria from 17 to 21, requiring review of Trouble Reports, Tactics, Techniques, and Procedures (TTP) aggregate workload assessment, and mission area assessment.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	23.374	23.459	41.854

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2013</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u>	<u>Total Cost</u>
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• OPN 2960: (ICSTD/DEP): <i>Integrated Combat System Test Division/Distributed Engineering Plant</i>	4.421	4.441	4.495	0.000	4.495	4.534	4.581	4.658	4.739	Continuing	Continuing

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>

**D. Acquisition Strategy**

RD TEN funding under this line supports independent certification of the integration of major capability upgrades acquired by Program Executive Offices (PEOs) into host Navy Platforms and Strike Forces. The RD TEN engineering and certification activities at field sites do not involve direct procurement of equipment or engineering services, and hence no acquisition strategy is required. The major capability upgrades evaluated under this program fall under their associated PEOs' acquisition strategies.

**E. Performance Metrics**

Program Review



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SF Requirements Engineering & Analysis	WR	NSWCs:DN/PHD/Corona	5.157	-		-		-		-	0.000	5.157	
SF Requirements Engineering & Analysis	WR	Non-NSWCs:Various	5.295	-		-		-		-	0.000	5.295	
Platform/Strike Force Certification	WR	NSWCs:DD/ICSTD/DN/Corona	39.732	-		-		-		-	0.000	39.732	
Platform/Strike Force Certification	WR	Non-NSWCs:Various	27.843	-		-		-		-	0.000	27.843	
Fleet Response Plan (FRP)	WR	NSWCs:DD/PHD/DN	27.030	-		-		-		-	0.000	27.030	
Fleet Response Plan (FRP)	WR	Non-NSWCs:Various	3.793	-		-		-		-	0.000	3.793	
Combat Systems Cert ISO Platform Cert	WR	NSWCs:DN/DD/PHD/Corona	24.640	-		-		-		-	0.000	24.640	
Combat Systems Cert ISO Platform Cert	WR	Non-NSWCs:Various	1.853	-		-		-		-	0.000	1.853	
Navigation System Certification	WR	SPAWAR:Charleston	4.464	0.615	Dec 2011	1.260	Dec 2012	-		1.260	Continuing	Continuing	Continuing
C5IMP & Fleet Readiness	WR	NSWCs:DD/PHD/DN	-	1.500	Dec 2011	5.925	Dec 2012	-		5.925	Continuing	Continuing	Continuing
C5IMP & Fleet Readiness	WR	Non-NSWCs:Various	-	-		0.768	Dec 2012	-		0.768	Continuing	Continuing	Continuing
Warfare Systems Certification	WR	NSWCs:DD//DN/Corona	-	1.000	Dec 2011	4.455	Dec 2012	-		4.455	0.000	5.455	
Warfare Systems Certification	WR	NSWCs:Various	-	2.380	Dec 2011	0.600	Dec 2012	-		0.600	0.000	2.980	
CNI/Design Agent	SS/CPAF	General Dynamics:Not Specified	47.926	-		-		-		-	0.000	47.926	
CNI/Software Engineering	WR	NSWC:Dahlgren	8.383	-		-		-		-	0.000	8.383	
CNI/Test and Evaluation	WR	CDSA:Not Specified	3.922	-		-		-		-	0.000	3.922	
CNI/Systems Engineering	WR	NSWC:PHD	2.645	-		-		-		-	0.000	2.645	
CNI/Miscellaneous	WR	Various:Various	7.529	-		-		-		-	0.000	7.529	
OA Automated Test and Retest	WR	NSWCs:Various	17.500	-		-		-		-	0.000	17.500	
Contract Engineering Support	C/CPFF	Gryphon Technology:VA	12.259	3.878	Dec 2011	7.590	Dec 2012	-		7.590	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Program Management Support	C/CPFF	Delta Resources Inc.:VA	8.141	-		-		-		-	Continuing	Continuing	Continuing
Travel	Allot	NAVSEA HQ:Washington, DC	1.590	0.300	Dec 2011	0.421	Dec 2012	-		0.421	Continuing	Continuing	Continuing
Interoperability Fixes	WR	NSWCs:Various	1.500	-		-		-		-	0.000	1.500	
<b>Subtotal</b>			251.202	9.673		21.019		-		21.019			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DEP Engineering and Operations	WR	NSWCs:DD/SPAWAR/San	17.129	-	Dec 2011	-		-		-	0.000	17.129	
DEP Engineering and Operations	WR	NSWCs:Various	12.623	-	Dec 2011	-		-		-	0.000	12.623	
Combat System Integration Testing (CSIT)	WR	NSWCs:DD/ICSTF/DN	-	2.606	Dec 2011	2.885	Dec 2012	-		2.885	0.000	5.491	
Interoperability Certification & Assessment	WR	NSWCs:DD/SPAWAR/San	-	9.180	Dec 2011	15.950	Dec 2012	-		15.950	0.000	25.130	
Interoperability Certification & Assessment	WR	NSWCs:Various	-	2.000	Dec 2011	2.000	Dec 2012	-		2.000	0.000	4.000	
<b>Subtotal</b>			29.752	13.786		20.835		-		20.835	0.000	64.373	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DAWDF	Various	Not Specified:Not Specified	0.311	-		-		-		-	0.000	0.311	
<b>Subtotal</b>			0.311	-		-		-		-	0.000	0.311	

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>			<b>PROJECT</b> 0164: <i>Combat System Integration</i>					
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	281.265	23.459		41.854		-		41.854			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>COMBAT SYSTEMS INTEGRATION</b>																												
CVN 75 TBV/CSIT (formerly known as WS12T)	■																											
CVN 71/76 TBV/CSIT			■	■																								
CVN 69/70/77 TBV/CSIT		■	■	■																								
AEGIS ACB 12 Integrated Testing DEMO #1 @ NSWC/DD				■																								
LHD 7/8 TBV/CSIT					■	■																						
FY 12 LPD 22/23 CSIT					■	■																						
AEGIS ACB 12 Integrated Testing DEMO #2 @ NSWC/DD										■																		
CVN 68 CSIT											■	■																
CVN 69 CSIT											■	■																
LCS 2 CSIT											■	■	■															
LHD 2 CSIT														■	■													
LPD 22 CSIT													■	■														
LSD 41 Class CSIT													■	■														
CVN 75 CSIT													■	■														
FY13 DDG 1000 CSIT													■	■														
FY13 CVN 69 Interoperability Assessment													■															
LPD 22 Interoperability Assessment													■															
ACB 12 Interoperability Assessment													■															
FY13 AWS 8.1.0.0 Interoperability Assessment															■													
CVN 76 CSIT																											■	

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LHD 7 CSIT														■														
LPD 24 CSIT														■	■													
FY14 LSD 41 Class CSIT														■														
CVN 74 CSIT																												
LCS 3 CSIT																												
CVN 77 CSIT																												
LPD 26 CSIT																												
FY14 LHD 7 Interoperability Assessment																												
LCS 3 Interoperability Assessment																												
FY14 ACB 12 Interoperability Assessment																												
AWS 7.1 Interoperability Assessment																												
CVN 73 CSIT																												
LHD 6 CSIT																												
LPD 19 CSIT																												
FY15 LSD 41 Class CSIT																												
LCS 1 CSIT																												
FY15 CVN 75 CSIT																												
CVN 71 CSIT																												
FY 15 DDG 1000 CSIT																												
CVN 75 Interoperability Assessment																												
DDG 1000 Interoperability Assessment																												
FY15 ACB 12 Interoperability Assessment																												
AWS 8 Interoperability Assessment																												
FY16 CVN 77 CSIT																												
FY16 LHA 6 CSIT																												

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LPD 18 CSIT																												
FY16 LSD 41 Class CSIT																												
CVN 72 CSIT																												
FY 16 LCS 2 CSIT																												
CVN 70 CSIT																												
LHD 5 CSIT																												
LPD 18 Interoperability Assessment																												
LCS 2 Interoperability Assessment																												
FY16 ACB 12 Interoperability Assessment																												
FY16 AWS 8 Interoperability Assessment																												
CVN 78 CSIT																												
FY17 LCS 1 CSIT																												
LHA 7 CSIT																												
LHD 4 CSIT																												
LPD 17 CSIT																												
FY17 LSD 41 Class CSIT																												
FY17 CVN 71 CSIT																												
FY17 CVN 69 CSIT																												
CVN 78 Interoperability Assessment																												
CVN 69 Interoperability Assessment																												
FY17 ACB 12 Interoperability Assessment																												
FY17 AWS 7.1 Interoperability Assessment																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>COMBAT SYSTEMS INTEGRATION</b>				
CVN 75 TBV/CSIT (formerly known as WSI2T)	1	2011	1	2011
CVN 71/76 TBV/CSIT	3	2011	4	2011
CVN 69/70/77 TBV/CSIT	2	2011	4	2011
AEGIS ACB 12 Integrated Testing DEMO #1 @ NSWC/DD	4	2011	4	2011
LHD 7/8 TBV/CSIT	1	2012	2	2012
FY 12 LPD 22/23 CSIT	1	2012	2	2012
AEGIS ACB 12 Integrated Testing DEMO #2 @ NSWC/DD	1	2013	1	2013
CVN 68 CSIT	2	2013	3	2013
CVN 69 CSIT	2	2013	3	2013
LCS 2 CSIT	1	2013	3	2013
LHD 2 CSIT	4	2013	1	2014
LPD 22 CSIT	3	2013	4	2013
LSD 41 Class CSIT	2	2013	3	2013
CVN 75 CSIT	2	2013	3	2013
FY13 DDG 1000 CSIT	3	2013	4	2013
FY13 CVN 69 Interoperability Assessment	1	2013	1	2013
LPD 22 Interoperability Assessment	2	2013	2	2013
ACB 12 Interoperability Assessment	3	2013	3	2013
FY13 AWS 8.1.0.0 Interoperability Assessment	4	2013	4	2013
CVN 76 CSIT	4	2014	1	2015
LHD 7 CSIT	3	2014	3	2014

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
LPD 24 CSIT	2	2014	3	2014
FY14 LSD 41 Class CSIT	1	2014	1	2014
CVN 74 CSIT	4	2014	1	2015
LCS 3 CSIT	3	2014	4	2014
CVN 77 CSIT	4	2014	1	2015
LPD 26 CSIT	4	2014	1	2015
FY14 LHD 7 Interoperability Assessment	1	2014	1	2014
LCS 3 Interoperability Assessment	2	2014	2	2014
FY14 ACB 12 Interoperability Assessment	3	2014	3	2014
AWS 7.1 Interoperability Assessment	4	2014	4	2014
CVN 73 CSIT	3	2015	4	2015
LHD 6 CSIT	2	2015	3	2015
LPD 19 CSIT	4	2015	1	2016
FY15 LSD 41 Class CSIT	3	2015	4	2015
LCS 1 CSIT	1	2015	2	2015
FY15 CVN 75 CSIT	1	2015	2	2015
CVN 71 CSIT	1	2015	2	2015
FY 15 DDG 1000 CSIT	2	2015	3	2015
CVN 75 Interoperability Assessment	1	2015	1	2015
DDG 1000 Interoperability Assessment	2	2015	2	2015
FY15 ACB 12 Interoperability Assessment	3	2015	3	2015
AWS 8 Interoperability Assessment	4	2015	4	2015
FY16 CVN 77 CSIT	1	2016	2	2016
FY16 LHA 6 CSIT	3	2016	4	2016
LPD 18 CSIT	3	2016	1	2017



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 0164: <i>Combat System Integration</i>
---	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
FY16 LSD 41 Class CSIT	1	2016	2	2016
CVN 72 CSIT	4	2016	1	2017
FY 16 LCS 2 CSIT	4	2016	1	2017
CVN 70 CSIT	3	2016	4	2016
LHD 5 CSIT	4	2016	1	2017
LPD 18 Interoperability Assessment	1	2016	1	2016
LCS 2 Interoperability Assessment	2	2016	2	2016
FY16 ACB 12 Interoperability Assessment	3	2016	3	2016
FY16 AWS 8 Interoperability Assessment	4	2016	4	2016
CVN 78 CSIT	3	2017	4	2017
FY17 LCS 1 CSIT	2	2017	3	2017
LHA 7 CSIT	3	2017	4	2017
LHD 4 CSIT	3	2017	4	2017
LPD 17 CSIT	1	2017	3	2017
FY17 LSD 41 Class CSIT	1	2017	2	2017
FY17 CVN 71 CSIT	1	2017	2	2017
FY17 CVN 69 CSIT	3	2017	4	2017
CVN 78 Interoperability Assessment	1	2017	1	2017
CVN 69 Interoperability Assessment	2	2017	2	2017
FY17 ACB 12 Interoperability Assessment	3	2017	3	2017
FY17 AWS 7.1 Interoperability Assessment	4	2017	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 2865: <i>WIDEBAND OPTICALLY MUTIPLIED BEAMFORMING ARCH</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2865: <i>WIDEBAND OPTICALLY MUTIPLIED BEAMFORMING ARCH</i>	-	0.001	-	-	-	-	-	-	-	0.000	0.001
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

These funds will be executed within Project 0164.

**A. Mission Description and Budget Item Justification**

N/A

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> New Accomplishment/Planned Program Entry	-	0.001	-
<b>Articles:</b>		0	
<b>Description:</b> These funds will be executed within Project 0164.			
<b>FY 2012 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	-	0.001	-

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>				<b>PROJECT</b> 3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>	-	0.593	4.561	-	4.561	5.096	4.668	5.139	5.169	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 funds participation in the Maritime Missile Defense Projects Framework Memorandum of Understanding of 2004 (as amended in 2009). Known as the Maritime Theater Missile Defense (MTMD) forum, it promotes interoperability with the Navies of nine participating nations. This project funds participation in several Project Arrangements and includes maritime contribution to the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) project.

The MTMD forum provides protection against the proliferation of short, medium and long-range Ballistic Missile (BM) and Advanced Anti-Ship Cruise Missile (ASCM) threats through the creation of an interoperable sea-based defense capability among coalition nations. This includes protection across the full spectrum of these threats through the enhanced utilization of existing sea-based systems to protect against current threats while progressively improving and developing systems and system-of- systems to effectively counter evolving threats.

MTMD supports USN participation in several MTMD related Project Arrangements and Working Groups including:

- (1) Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) to define and develop architectures as well as to perform engineering to address coalition capability gaps.
- (2) Modeling & Simulation (M&S) to establish and maintain a maritime coalition M&S testbed and to perform legacy and future systems simulation testing.
- (3) Coalition Distributed Engineering Plant (CDEP) to establish and maintain a maritime coalition Hardware-in-the-Loop Testbed and to conduct CDEP testing.
- (4) Open Architecture (OA) to develop Interface Standards and Data Models.
- (5) Test Planning and Execution (TPEX) to develop Test Plans, oversee exercise participation and conduct post event data analysis and reporting.
- (6) Operational Requirements (OR) to develop a Coalition Maritime Missile Defense Operational Concept Document and to identify operational constraints and tactical constructs surrounding coalition maritime missile defense activities.
- (7) Coalition Supersonic Sea-Skimming Targets (CSSST) to evaluate the conversion of excess TERRIER Missiles into low cost targets.
- (8) Next Generation Infrared Search and Track (IRST) to evaluate and commercial-based technologies to develop a passive IRST sensor system in support of coalition maritime missile defense operations.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Maritime Theater Missile Defense Forum (MTMD)	-	0.593	4.561
<b>Articles:</b>		0	0
<b>Description:</b> This project funds participation in the MTMD forum to promote interoperability with participating coalition nations. This project funds participation in the Modeling and Simulation (M&S), Battle Management, Command, Control, Communications,			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Computers and Intelligence (BMC4I), and Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), Operational Requirements (OR), Coalition Supersonic Sea-Skimming Targets (CSSST), and Next Generation Infrared Search and Track (IRST) Project Arrangements and working groups.				
<b>FY 2012 Plans:</b> To participate in the Modeling and Simulation (M&S), Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I), and Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), Operational Requirements (OR), Coalition Supersonic Sea-Skimming Targets (CSSST), and Next Generation Infrared Search and Track (IRST) Project Arrangements and working groups.				
<b>FY 2013 Plans:</b> To participate in the Modeling and Simulation (M&S), Battle Management, Command, Control, Communications, Computers and Intelligence (BMC4I), and Coalition Distributed Engineering Plant (CDEP), Test Planning and Execution (TPEX), Open Architecture (OA), Operational Requirements (OR), Coalition Supersonic Sea-Skimming Targets (CSSST), and Next Generation Infrared Search and Track (IRST) Project Arrangements and working groups.				
<b>Accomplishments/Planned Programs Subtotals</b>		-	0.593	4.561
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>D. Acquisition Strategy</b> N/A				
<b>E. Performance Metrics</b> Program Review				



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>
---	---	--

<b>MTMD - MARITIME THEATER MISSILE DEFENSE FORUM</b>	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
					-Modeling & Simulation (M&S) Test #1									1Q															
					Coalition Distributed Engineering Plant (CDEP) Working Group Interoperability Test #1																								
					Test Planning and Execution (TPEX) At-Sea Event #1																								
					-Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I)																								
					Baseline Architecture Deliverable																								
					-Operational Requirements (OR) At-Sea Exercise					-Modeling & Simulation (M&S) Test #2																			
										-Modeling & Simulation (M&S) Test #3																			
										CDEP Working Group Interoperability Test #2																			
										TPEX At-Sea Event #2																			
										-BMC4I Target Architecture Deliverable #1																			
																				</									



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 3312: <i>MTMD-Maritime Theater Missile Defense Forum</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>MTMD - MARITIME THEATER MISSILE DEFENSE FORUM</b>				
Modeling & Simulation (M&S) Test #1	1	2012	4	2012
Coalition Distributed Engineering Plant (CDEP) Working Group Interoperability Test #1	1	2012	4	2012
Test Planning and Execution (TPEX) At-Sea Event #1	1	2012	4	2012
Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I)	1	2012	4	2012
Baseline Architecture Deliverable	1	2012	4	2013
Operational Requirements (OR) At-Sea Exercise	1	2012	4	2012
Modeling & Simulation (M&S) Test #2	1	2013	4	2013
Modeling & Simulation (M&S) Test #3	1	2013	4	2013
CDEP Working Group Interoperability Test #2	1	2013	4	2013
TPEX At-Sea Event #2	1	2013	4	2013
-BMC4I Target Architecture Deliverable #1	1	2013	4	2013
Modeling & Simulation (M&S) Test #4	1	2014	1	2014
CDEP Working Group Interoperability Test #3	1	2014	1	2014
TPEX At-Sea Event #3	1	2014	1	2014
BMC4I Target Architecture Deliverable #2	1	2014	1	2014
TPEX At-Sea Demo	1	2015	4	2015



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	9.949	-	-	-	-	-	-	-	-	0.000	9.949
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Automated Test and Re-Test (ATRT)

**A. Mission Description and Budget Item Justification**

The Navy, through Automated Test and Re-Test (ATRT) is developing an automated test/analysis capability, which is applicable at phases within system development and integration which provides reproducible and quantitative evaluation of system performance with reduced levels of effort and schedule in order to support one of the Navy's priority initiatives of reduction of Total Ownership Cost (TOC). Funding will provide additional work towards ongoing testing and analysis efforts within the Combat Systems Integration Testing (CSIT), formally known as Warfare Systems Integration and Interoperability Testing (WSI2T), AEGIS Combat System Advanced Capability Build (ACB) 12, Antisubmarine Warfare Integrated Common Processor/ Acoustic Rapid Commercial Off The Shelf (COTS) Insertion, the Littoral Combat Ship (LCS) Mission Module development and other major acquisition programs. In addition, funding will support the development of standards, specifications, and guidance to facilitate NAVSEA-affiliated programs' adoption of this TOC-reducing discipline and technology.

**B. Accomplishments/Planned Programs (\$ in Millions)**

**Congressional Add:** AUTOMATED TEST AND RE-TEST

**FY 2011 Accomplishments:** ATRT proposals and objectives were prioritized by an Executive Steering Committee (ESC) for the implementation of ATRT by the contractor and to transfer an automated test capability through training to the respective government programs. The projects and tasking selected to receive ATRT start-up dollars are the following:

Combat Systems Integration Testing (CSIT), formally known as Warfare Systems Integration and Interoperability Testing (WSI2T)- NAVSEA) Use ATRT to develop a "self-throttling" test capability for use in CSIT for Ship Self Defense System (SSDS).

AEGIS (Part I) - (PEO IWS) Apply ATRT to at-sea testing analysis to extend coverage of AEGIS 3.2 requirements (combat system level) and update scenario manager to assist with land-based testing for Advanced Capability Build (ACB) 08 and ACB 12 baselines.

FY 2011	FY 2012
9.949	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2011	FY 2012
Integrated Common Processor (ICP) / Acoustic Rapid COTS Insertion (A-RCI) - (PEO LMW/SUB) ICP and A-RCI use common software components from submarine and surface USW systems. PMS 485 and 401 have developed plan for combined project.		
LCS Mission Module (MM)-Seaframe (Part I) - (PEO LMW) Apply ATRT to automate message-based interface testing between LCS MM and Seaframe Combat Management System (CMS). Focus on MM messaging and minimal required CMS messaging.		
Development of specifications, standards, and FY12 proposal content. This information will be a product of the future ATRT work group with collaboration from other ATRT users within the community.		
<b>Congressional Adds Subtotals</b>	9.949	-

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

N/A

**D. Acquisition Strategy**

The Program Strategy for the ATRT program includes the following:

- Investigation of applicable similarities to industry standards, specifications, and processes that are relevant to ATRT program to recognize best practices and leverage opportunities
- Development of standards and specifications for ATRT tools/processes
- Funding and execution of ATRT startup projects within acquisition programs per submission of proposals and Business Case Analyses (BCA)
- Development of training and outreach efforts to promote awareness of automated testing and analysis body of knowledge and available tools/processes
- Setup and maintain an ATRT portal for the collection and dissemination of body of knowledge
- Produce Contract Language Guidebook for ATRT

**E. Performance Metrics**

Progress towards meeting the objectives of the ATRT efforts will be monitored via the following:

- Progress Briefs at Quarterly ATRT Stakeholders Meetings
- Program Technical Reviews
- Return on Investment (ROI) metrics based on testing and analysis level of effort (LOA) - before and after implementation of ATRT
- Return on Investment Metrics based on work hours for test process execution - before and after automation

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 9B88: <i>Automated Test and Re-Test</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9B88: <i>Automated Test and Re-Test</i>	-	10.070	10.136	-	10.136	10.165	8.190	8.311	8.473	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Navy, through Automated Test and Re-Test (ATRT) is developing an automated test/analysis capability, which is applicable at phases within system development and integration which provides reproducible and quantitative evaluation of system performance with reduced levels of effort and schedule in order to support one of the Navy's priority initiatives of reduction of Total Ownership Cost (TOC). Funding will provide additional work towards ongoing testing and analysis efforts within the Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), AEGIS Combat System Advanced Capability Build (ACB) 12, Antisubmarine Warfare Integrated Common Processor/ Acoustic Rapid COTS Insertion, the Littoral Combat Ship (LCS) Mission Module development and other major acquisition programs. In addition, funding will support the development of standards, specifications, and guidance to facilitate NAVSEA-affiliated programs' adoption of this TOC-reducing discipline and technology.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Automated Test and Re-Test	-	10.070	10.136
<b>Articles:</b>		0	0
<p><b>Description:</b> The Navy, through Automated Test and Re-Test (ATRT) is developing an automated test/analysis capability, which is applicable at phases within system development and integration which provides reproducible and quantitative evaluation of system performance with reduced levels of effort and schedule in order to support one of the Navy's priority initiatives of reduction of Total Ownership Cost (TOC). Funding will provide additional work towards ongoing testing and analysis efforts within the Combat Systems Integration Testing (CSIT), formerly known as Warfare Systems Integration and Interoperability Testing (WSI2T), AEGIS Combat System Advanced Capability Build (ACB) 12, Antisubmarine Warfare Integrated Common Processor/ Acoustic Rapid COTS Insertion, the Littoral Combat Ship (LCS) Mission Module development and other major acquisition programs. In addition, funding will support the development of standards, specifications, and guidance to facilitate NAVSEA-affiliated programs' adoption of this TOC-reducing discipline and technology.</p> <p><b>FY 2012 Plans:</b> Establish the Automated Test and Re-Test (ATRT) working group for continued development of ATRT standards, specifications, and guidance. Provide guidance to startup projects for the implementation of the ATRT capability. Collect lessons learned for ATRT. Conduct outreach efforts to NAVSEA programs and industry for ATRT implementation across the warfare domains. Develop procedure to quantify improved quality of the system under test, and create a general proposal/ business case analysis template for future startup efforts.</p> <p><b>FY 2013 Plans:</b></p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 9B88: <i>Automated Test and Re-Test</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
To sustain the Automated Test Re-Test (ATRT) work group for continued development and improvement of ATRT standards, specifications, and guidance through thorough investigations of shared lessons learned from NAVSEA and other SYSCOMs. Provide guidance to startup projects for the implementation of the ATRT capability. Enhance training modules and best practice methods for ATRT. Conduct outreach efforts to NAVSEA programs and industry for ATRT implementation across the warfare domains.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	10.070	10.136

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

N/A

**D. Acquisition Strategy**

- The Program Strategy for the ATRT program includes the following:
- Investigation of applicable similarities to industry standards, specifications, and processes that are relevant to ATRT program to recognize best practices and leverage opportunities
  - Development of standards and specifications for ATRT tools/processes
  - Funding and execution of ATRT startup projects within acquisition programs per submission of proposals and Business Case Analyses (BCA)
  - Development of training and outreach efforts to promote awareness of automated testing and analysis body of knowledge and available tools/processes
  - Setup and maintain an ATRT portal for the collection and dissemination of body of knowledge
  - Produce Contract Language Guidebook for ATRT

**E. Performance Metrics**

- Progress towards meeting the objectives of the ATRT efforts will be monitored via the following:
- Progress Briefs at Quarterly ATRT Stakeholders Meetings
  - Program Technical Reviews
  - Return on Investment (ROI) metrics based on testing and analysis level of effort (LOA) - before and after implementation of ATRT
  - Return on Investment Metrics based on work hours for test process execution - before and after automation



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 9B88: <i>Automated Test and Re-Test</i>
---	---	---

Proj 9B88	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Automated Test and Re-Test (ATRT)					Development of ATRT Reference Model																								
	Annual Startup Projects for ATRT Implementation																												
	Development of ATRT standards and specifications																												
	Participation in Existing Government and Industrial Standards Boards																												
	Evaluation of Business Case Analyses (BCA) of potential ATRT investments																												
	Development of training and lessons learned for ATRT																												
	Development of guidance for contract and requirements language pertaining to ATRT																												
	Conduct of outreach efforts to NAVSEA programs and industry																												
	ATRT Portal for Body of Knowledge																												

2013DON - 0603582N - 9B88

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603582N: <i>Combat System Integration</i>	<b>PROJECT</b> 9B88: <i>Automated Test and Re-Test</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 9B88</b>				
Automated Test and Re-Test (ATRT): Development of ATRT Reference Model	1	2012	1	2012
Automated Test and Re-Test (ATRT): Annual Startup Projects for ATRT Implementation	1	2012	4	2017
Automated Test and Re-Test (ATRT): Development of ATRT standards and specifications	1	2012	4	2017
Automated Test and Re-Test (ATRT): Participation in Existing Government and Industrial Standards Boards	1	2012	4	2017
Automated Test and Re-Test (ATRT): Evaluation of Business Case Analyses (BCA) of potential ATRT investments	1	2012	4	2017
Automated Test and Re-Test (ATRT): Development of training and lessons learned for ATRT	1	2012	4	2017
Automated Test and Re-Test (ATRT): Development of guidance for contract and requirements language pertaining to ATRT	1	2012	4	2017
Automated Test and Re-Test (ATRT): Conduct of outreach efforts to NAVSEA programs and industry	1	2012	4	2017
Automated Test and Re-Test (ATRT): ATRT Portal for Body of Knowledge	1	2012	4	2017

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603609N: <i>Conventional Munitions</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	5.333	4.753	7.342	-	7.342	8.513	8.533	9.430	8.646	Continuing	Continuing
0363: <i>Insensitive Munitions Adv. Development</i>	5.333	4.753	7.342	-	7.342	8.513	8.533	9.430	8.646	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Insensitive Munitions Advanced Development (IMAD) (Project 0363) - Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet or fragment impact, thus presenting a great hazard to ships, aircraft and personnel. This program will provide, validate and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. IMAD is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuses and pyrotechnics to reduce the severity of cook-off and bullet/fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship and platform survivability and satisfying performance and readiness requirements.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	5.388	4.753	5.288	-	5.288
Current President's Budget	5.333	4.753	7.342	-	7.342
Total Adjustments	-0.055	-	2.054	-	2.054
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.028	-			
• Program Adjustments	-	-	2.099	-	2.099
• Rate/Misc Adjustments	-	-	-0.045	-	-0.045
• Congressional General Reductions Adjustments	-0.027	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603609N: <i>Conventional Munitions</i>				<b>PROJECT</b> 0363: <i>Insensitive Munitions Adv. Development</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0363: <i>Insensitive Munitions Adv. Development</i>	5.333	4.753	7.342	-	7.342	8.513	8.533	9.430	8.646	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Most Navy munitions react violently when exposed to unplanned stimuli such as fire, shock and bullet impact, thus presenting a great hazard to ships, aircraft and personnel. This program will provide, validate and transition technology to all new weapon developments and priority weapon systems and enable production of munitions insensitive to these stimuli with no reduction in combat performance. The Insensitive Munitions (IM) Program is the Navy's focused effort on propellants, propulsion units, explosives, warheads, fuses and pyrotechnics to reduce the severity of cook-off and bullet/fragment impact reactions, minimizing the probability for sympathetic detonation, both in normal storage and in use, increasing ship survivability and satisfying performance and readiness requirements. Each technology area is divided into subtasks addressing specific munition/munition class IM deficiencies. Energetic materials producibility is demonstrated to assure national capability to produce and load munitions systems. The program leverages are being closely coordinated with other Military Departments, North Atlantic Treaty organization (NATO) and allied countries to eliminate redundant efforts and maximize efficiency. A joint service IM requirement has been developed and through the IM Strategic Planning process, all PEO's are implementing IM in their priority munitions. Insensitive munitions are identified as a DoD critical technology requirement and considered as part of a weapon design. The Insensitive Munitions Advanced Development (IMAD) program matures the technology developed by a variety of Science and Technology (S&T) sources for program management integration into weapons systems to meet the IM technical deficiencies documented in the PEO IM Strategic Plans. IMAD provides the link between S&T programs and the PMs by optimizing IM technologies to meet Navy requirements. IMAD offers risk mitigation for the PMs in terms of IM technical knowledge, expertise and manpower with the State of the Art expertise across IM products. Each technology area is divided into subtasks addressing specific munition and munition class IM deficiencies.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Insensitive Munitions Adv. Development	5.333	4.753	7.342
<b>Articles:</b>	0	0	0
<b>Description:</b> Validate and assess weapon systems POA&M's for Insensitive Munitions (IM) compliance. Review Insensitive Munitions Strategic Plan (IMSP) for Navy Compile and analyze weapon system, energetic material and generic technology IM test data. Perform Threat Hazard Assessments (THAs). Perform analysis of Energetic Material properties logistic process. Review IM Certification and Waivers. Support Insensitive Munitions Council (IMC), Insensitive Munitions Coordination Group (IMCG), and IMC Working Group. Support and develop Insensitive Munitions Technology Tool (IMT2). Support North Atlantic Treaty Organization Standardization Agreement (NATO STANAG) and Advanced Operations (AOP) development. Support Insensitive Munitions Advanced Development (IMAD) program briefs. Support all Navy Joint Services Insensitive Munitions Technical Panel (JSIMTP) meetings. Support Explosive Safety Working Group (ESWG) meetings. Provide task management support for financial management, review of programmatic deliverables and overall task coordination.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603609N: <i>Conventional Munitions</i>	<b>PROJECT</b> 0363: <i>Insensitive Munitions Adv. Development</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
---	----------------	----------------	----------------

***FY 2011 Accomplishments:***  
 Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications. Evaluated and demonstrated IM boost propellant formulation for future Tomahawk systems which provide improved and comparable performance to in-service systems and better IM characteristics. Combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Design a composite booster case for Tomahawk which will improve IM performance for cookoff and impact scenarios. Demonstrate new formulations that will self extinguish while maintaining performance for Advanced Medium-Range Air to Air Missile (AMRAAM), Sidewinder and other air launched systems. Look at new way to develop rocket propellant formulations that meet performance requirements and solve IM deficiencies. IM problems resolution using top down approach. Evaluate ordnance and container concepts. Model applications that reduce and enhance IM warhead design. Assess the operations utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology. Assess shielding evaluation of Tomahawk VLS storage canister. New cooperative effort with Advanced Gun System (AGS) LRLAP to review modeling to solve impact and cookoff with AUR pallet.

***FY 2012 Plans:***  
 Evaluate and demonstrate IM propellants and propulsion systems which provide improved or comparable performance to in-service systems and better IM characteristics. Combine candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Demonstrate an insensitive multi-mission, high performance rocket motor. Evaluate options for minimum smoke propellants for shoulder launched applications. Evaluated and demonstrated IM boost propellant formulation for future Tomahawk systems which provide improved and comparable performance to in-service systems and better IM characteristics. Combined candidate IM propellants and case concepts to demonstrate compliance with IM and performance requirements. Design a composite booster case for Tomahawk which will improve IM performance for cookoff and impact scenarios. Demonstrate new formulations that will self extinguish while maintaining performance for Advanced Medium-Range Air to Air Missile (AMRAAM), Sidewinder and other air launched systems. Look at new ways to develop rocket propellant formulations that meet performance requirements and solve IM deficiencies. IM problems resolution using top down approach. Evaluate ordnance and container concepts. Model applications that reduce and enhance IM warhead design. Assess the operations utility of current and projected IM improvements to determine current state of IM and prioritize future funding for IM technology. Assess shielding evaluation of Tomahawk VLS storage canister. New cooperative effort with Advanced Gun System (AGS) LRLAP to review modeling to solve impact and cookoff with AUR pallet.

***FY 2013 Plans:***

--	--	--	--

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603609N: <i>Conventional Munitions</i>	<b>PROJECT</b> 0363: <i>Insensitive Munitions Adv. Development</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	5.333	4.753	7.342

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

N/A

**D. Acquisition Strategy**

NOT APPLICABLE-

The Insensitive Munitions Advanced Development Program (IMAD) is assigned as a Non-ACAT program and therefore does not have program milestones like the ACAT I to IV programs. IMAD develops and evaluates IM technologies for use in Navy weapon systems and is not part of a particular weapon acquisition program.

**E. Performance Metrics**

Quarterly Program Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603609N: <i>Conventional Munitions</i>	<b>PROJECT</b> 0363: <i>Insensitive Munitions Adv. Development</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PROPULSION DEV. AND EVAL.	WR	NAWC DIV/CHINA LAKE:WX	90.125	1.078	Nov 2011	1.655	Nov 2012	-		1.655	0.000	92.858	
EXPLOSIVES DEV. AND EVAL.	WR	NSWC/INDIAN HEAD DIV.:WX	75.006	1.405	Nov 2011	2.364	Nov 2012	-		2.364	0.000	78.775	
ORDNANCE DEV. AND EVAL.	WR	NSWC/DAHLGREN:WX	21.282	0.466	Nov 2011	0.654	Nov 2012	-		0.654	0.000	22.402	
GUN PROPULSION AND EVAL.	WR	NSWC/INDIAN HEAD DIV.:WX	2.952	1.002	Nov 2011	1.718	Nov 2012	-		1.718	0.000	5.672	
<b>Subtotal</b>			189.365	3.951		6.391		-		6.391	0.000	199.707	

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PROGRAM MANAGEMENT SUPT	WR	NOSSA:IN HEAD MD	5.227	0.145	Nov 2011	0.151	Nov 2012	-		0.151	0.000	5.523	
PROGRAM MANAGEMENT SUPPORT	MIPR	DTIC:FT BELVOIR VA	0.785	0.657	Nov 2011	0.800	Nov 2012	-		0.800	0.000	2.242	
<b>Subtotal</b>			6.012	0.802		0.951		-		0.951	0.000	7.765	

	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>		195.377	4.753		7.342		-	7.342	0.000	207.472	

**Remarks**

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	214.597	37.000	95.182	-	95.182	149.871	276.217	388.674	123.103	Continuing	Continuing
0020: <i>AAAV</i>	214.597	-	-	-	-	-	-	-	-	0.000	214.597
0025: <i>New Amphibious Vehicle</i>	-	12.000	95.182	-	95.182	149.871	276.217	388.674	123.103	Continuing	Continuing
9999: <i>Congressional Adds</i>	-	25.000	-	-	-	-	-	-	-	0.000	25.000

**A. Mission Description and Budget Item Justification**

This Program Element (PE) includes funds for the Expeditionary Fighting Vehicle (EFV) and the Amphibious Combat Vehicle (ACV) Programs.

C0020: The Department of Defense cancelled the EFV program in January 2011. The FY 2011 funds were used to cover termination costs as well as complete developmental efforts to include development and delivery of Software drop 10.2 and reliability growth development and testing through Knowledge Point 2 (KP-2) and beyond. Efforts are to be completed in February 2012, with reporting and associated closeout tasks continuing into March 2012. These efforts will provide validated systems engineering and process models and initial design data valuable to inform and develop future Marine Corps requirements.

C0025: The Amphibious Combat Vehicle (ACV) program meets the Marine Corps' requirement for self-deploying, fully amphibious vehicles in order to maintain the Marine Corps' amphibious forcible entry capability. The ACV will be included as part of the Marine Corps' integrated and complementary portfolio of combat vehicles critical to the future expeditionary Marine Air Ground Task Force (MAGTF) operations.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>
---	---

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	242.765	12.000	36.665	-	36.665
Current President's Budget	214.597	37.000	95.182	-	95.182
Total Adjustments	-28.168	25.000	58.517	-	58.517
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	25.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-7.006	-			
• Program Adjustments	-	-	58.517	-	58.517
• Rate/Misc Adjustments	-	-	-	-	-
• Congressional General Reductions Adjustments	-1.162	-	-	-	-
• Congressional Directed Reductions Adjustments	-165.000	-	-	-	-
• Congressional Add Adjustments	145.000	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *New Amphibious Vehicle (Cong)*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	<b>FY 2011</b>	<b>FY 2012</b>
	-	25.000
Congressional Add Subtotals for Project: 9999	-	25.000
Congressional Add Totals for all Projects	-	25.000

**Change Summary Explanation**

EFV - FY11 decrease due to termination of the program. The increase is required to complete termination costs as well as fund program termination costs to include prime contractor termination liability and closeout, closeout of support activities, disposition of government property, complete developmental efforts to include development and delivery of Software drop 10.2 and reliability growth development and testing through Knowledge Point 2 (KP-2) and beyond.

ACV - FY13 increase is to support continuation of System design and development, program support, and contractor support.



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 0020: <i>AAAV</i>
---	---	-------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0020: AAAV	214.597	-	-	-	-	-	-	-	-	0.000	214.597
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Department of Defense cancelled the EFV program in January 2011. The FY 2011 funds were used to cover termination costs, complete developmental efforts to include delivery of Software drop 10.2, reliability growth development and testing through Knowledge Point 2 (KP-2) and beyond. These efforts will provide validated systems engineering and process models and initial design data valuable to inform and develop future Marine Corps requirements. FY11 funding also funds program termination costs to include prime contractor termination liability and closeout, closeout of support activities, and disposition of government property.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Design development, developmental testing, operational testing.</p> <p><b>Articles:</b></p> <p><b>Description:</b> While cancelling the EFV program, FY11 funds were utilized to support and complete certain development and testing efforts that will be integral to future amphibious vehicle development. FY11 funded reliability growth design and development, reliability growth testing, and engineering and logistics support through KP-2. The completion of these efforts are providing validated systems engineering and process models and initial design data valuable to the development of future Marine Corps requirements.</p> <p><b>FY 2011 Accomplishments:</b> FY11 funded reliability growth design and development, reliability growth testing, and engineering and logistics support through KP-2. Continued engineering and logistics efforts to support design development, manufacturing planning, and design enhancements of the EFV(P) and EFV(C) designs; continued development of Integrated Electronic Technical Manuals (IETM); continued Developmental Testing (DT) and Reliability Growth Testing (RGT); and continued design and development of follow-on reliability enhancements, subsystem design modifications, and modification of existing vehicles integrating reliability design changes, through KP-2 and beyond.</p>	177.341 0	-	-
<p><b>Title:</b> Perform developmental testing, operational testing, reliability growth testing.</p> <p><b>Articles:</b></p> <p><b>Description:</b> While cancelling the EFV program, FY11 funds were used to support and complete certain development and testing efforts that will be integral to future amphibious vehicle development. FY11 funded the developmental and reliability growth testing efforts through the completion of KP-2 and beyond.</p> <p><b>FY 2011 Accomplishments:</b></p>	5.975 0	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>		<b>PROJECT</b> 0020: <i>AAAV</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Complete developmental and reliability growth testing.				
<p><b>Title:</b> Provide program support for training development, technical publications and IETMS.</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> While cancelling the EFV program, FY11 funds were used to support and complete certain development and testing efforts that will be integral to future amphibious vehicle development.</p> <p><b>FY 2011 Accomplishments:</b> Support reliability growth testing and close out training systems support activities.</p>		11.197 0	-	-
<p><b>Title:</b> Contractor Support</p> <p><b>Description:</b> While cancelling the EFV program, FY11 funds were used to support and complete certain development and testing efforts that will be integral to future amphibious vehicle development. FY11 funded contractor software development, technical engineering, and management support.</p> <p><b>FY 2011 Accomplishments:</b> Contractor software development and integration, technical engineering, and management support through the completion of KP-2 and EFV technology harvesting efforts.</p>		12.365 0	-	-
<p><b>Title:</b> In-house Support</p> <p><b>Description:</b> While cancelling the EFV program, FY11 funds were being used to support and complete certain development and testing efforts that will be integral to future amphibious vehicle development. FY11 funded in-house software development, technical engineering, and logistics support.</p> <p><b>FY 2011 Accomplishments:</b> Complete In-house software design, development, and analysis efforts through KP-2 and in support of EFV technology harvesting efforts.</p>		7.719 0	-	-
<b>Accomplishments/Planned Programs Subtotals</b>		214.597	-	-
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 0020: <i>AAAV</i>

**D. Acquisition Strategy**

The Department of Defense cancelled the EFV program in January 2011.

**E. Performance Metrics**

Milestone Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 0020: <i>AAAV</i>
---	---	-------------------------------------

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
PDRR Contract	C/CPAF	GDLS:Woodbridge, VA	399.703	-		-		-		-	0.000	399.703	
System Design and Development	C/CPAF	GDLS:Woodbridge, VA	2,094.147	-		-		-		-	0.000	2,094.147	
Other Product Development	C/CPAF	GDLS:Woodbridge, VA	2.329	-		-		-		-	0.000	2.329	
Regenerative Filtration	C/CPAF	Army:Edgewood Chem/Bio Center	3.327	-		-		-		-	0.000	3.327	
Survivability Contract	Various	NSMA:Arlington, VA	29.338	-		-		-		-	0.000	29.338	
Display Technology	SS/CPFF	ISR Corp:Baltimore, MD	1.640	-		-		-		-	0.000	1.640	
Intelligent Machining of Advanced Defense Materials	SS/FFP	GDLS:Woodbridge, VA	2.914	-		-		-		-	0.000	2.914	
Digital Facsimile Upgrade	SS/FFP	GD C4S:Taunton, MA	2.816	-		-		-		-	0.000	2.816	
<b>Subtotal</b>			2,536.214	-		-		-		-	0.000	2,536.214	

**Remarks**  
Breakout of Program Cancellation by Cost Category Item Name is still being determined.

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Integrated Logistics Support	Various	Various:Various	33.119	-		-		-		-	0.000	33.119	
Training Devices/Simulators	C/CPFF	Carley Corp:Orlando, FL	63.138	-		-		-		-	0.000	63.138	
Tech Data & Pubs Development	Various	Various:Various	1.521	-		-		-		-	0.000	1.521	
Support Equipment Development	Various	Various:Various	0.433	-		-		-		-	0.000	0.433	
<b>Subtotal</b>			98.211	-		-		-		-	0.000	98.211	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 0020: <i>AAAV</i>
---	---	-------------------------------------

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental, Operational and Live Fire Test & Evaluation	Various	Various:Various	118.679	-		-		-		-	0.000	118.679	
<b>Subtotal</b>			118.679	-		-		-		-	0.000	118.679	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Technical Services	Various	Various:Various	67.652	-		-		-		-	0.000	67.652	
Management Support Services	Various	Various:Various	72.889	-		-		-		-	0.000	72.889	
Studies and Analyses	Various	Various:Various	1.268	-		-		-		-	0.000	1.268	
In-House Technical Support	Various	Various:Various	154.845	-		-		-		-	0.000	154.845	
Program Management Support	Various	Various:Various	23.776	-		-		-		-	0.000	23.776	
Travel	Various	Various:Various	8.966	-		-		-		-	0.000	8.966	
<b>Subtotal</b>			329.396	-		-		-		-	0.000	329.396	

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		3,082.500	-	-	-	-	0.000	3,082.500

**Remarks**



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 0025: <i>New Amphibious Vehicle</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0025: <i>New Amphibious Vehicle</i>	-	12.000	95.182	-	95.182	149.871	276.217	388.674	123.103	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Amphibious Combat Vehicle (ACV) program meets the Marine Corps' requirement for self-deploying, fully amphibious vehicles, in order to maintain an amphibious forcible entry capability. The ACV will be included as part of the Marine Corps' integrated and complementary portfolio of combat vehicles critical to the future expeditionary Marine Air Ground Task Force (MAGTF) operations.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> System Design and Development and Other Product Development</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> System Design and Development.</p> <p><b>FY 2013 Plans:</b> Perform System Design and Development efforts. Perform survivability and mine blasting initiatives and technology demonstration and integration efforts. Begin ACV Prototype Design and Development with two contractors. Perform Hull Survivability Demonstrator (HSD) design build and test support.</p>	-	-	82.727 0
<p><b>Title:</b> Test &amp; Evaluation</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> Provides funds for developmental testing.</p> <p><b>FY 2013 Plans:</b> Funds are provided to support technical demonstration and test activities.</p>	-	-	0.150 0
<p><b>Title:</b> Contractor Support</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> Contract Advisory &amp; Asst Services (CA&amp;AS) provides contractor engineering and technical services and management support services for program planning, analysis and execution; acquisition documentation development; and development of Analysis of Alternatives (AOA).</p> <p><b>FY 2012 Plans:</b></p>	-	6.291 0	5.825 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>		<b>PROJECT</b> 0025: <i>New Amphibious Vehicle</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
Provide contractor technical and management support for program planning, analysis and execution including acquisition documentation development and development of Analysis of Alternatives (AOA). Provide engineering and technical services in support of Hull Survivability Demonstrator design and analysis and engineering support for vehicle integration architecture prototyping. <b>FY 2013 Plans:</b> Engineering and technical services in support of technology integration and demonstration efforts. Continue providing contractor engineering and management support for program planning, analysis and execution.				<b>FY 2011</b>
				<b>FY 2012</b>
				<b>FY 2013</b>
<b>Title:</b> In-House Management Support  <b>Description:</b> Provide technical and program management support and travel.  <b>FY 2012 Plans:</b> Program travel and support. Provide technical and program management support for technology integration and demonstration efforts. Provide technical and engineering support of the digital integration architecture and facilitization. Continue program travel and support funding.  <b>FY 2013 Plans:</b> Provide technical and program management support for technology integration and demonstration efforts. Provide technical and engineering support of the digital integration architecture and facilitization. Continue program travel and support funding.				-
				5.709
				6.480
<b>Articles:</b>				0
				0
<b>Accomplishments/Planned Programs Subtotals</b>				-
				12.000
				95.182
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>D. Acquisition Strategy</b> The ACV acquisition strategy includes leveraging of mature technological capabilities gained through EFV development. It includes models, simulation, and advanced technology research to optimize vehicle design while controlling vehicle cost.				
<b>E. Performance Metrics</b> Milestone Reviews				



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 0025: <i>New Amphibious Vehicle</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Design & Development	C/FPIF	Various:TBD	-	-		67.621	Jan 2013	-		67.621	1,115.950	1,183.571	
Hull Survivability Demonstrator	Various	Various:TBD	-	-		15.107	Nov 2012	-		15.107	189.007	204.114	
<b>Subtotal</b>			-	-		82.728		-		82.728	1,304.957	1,387.685	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistic Support	WR	TBD:TBD	-	-		-		-		-	7.529	7.529	
Training Devices/Stimulators	Various	TBD:TBD	-	-		-		-		-	50.187	50.187	
Technical Data & Pubs Development	Various	TBD:TBD	-	-		-		-		-	0.000	0.000	
Support Equipment Development	WR	TBD:TBD	-	-		-		-		-	0.000	0.000	
<b>Subtotal</b>			-	-		-		-		-	57.716	57.716	

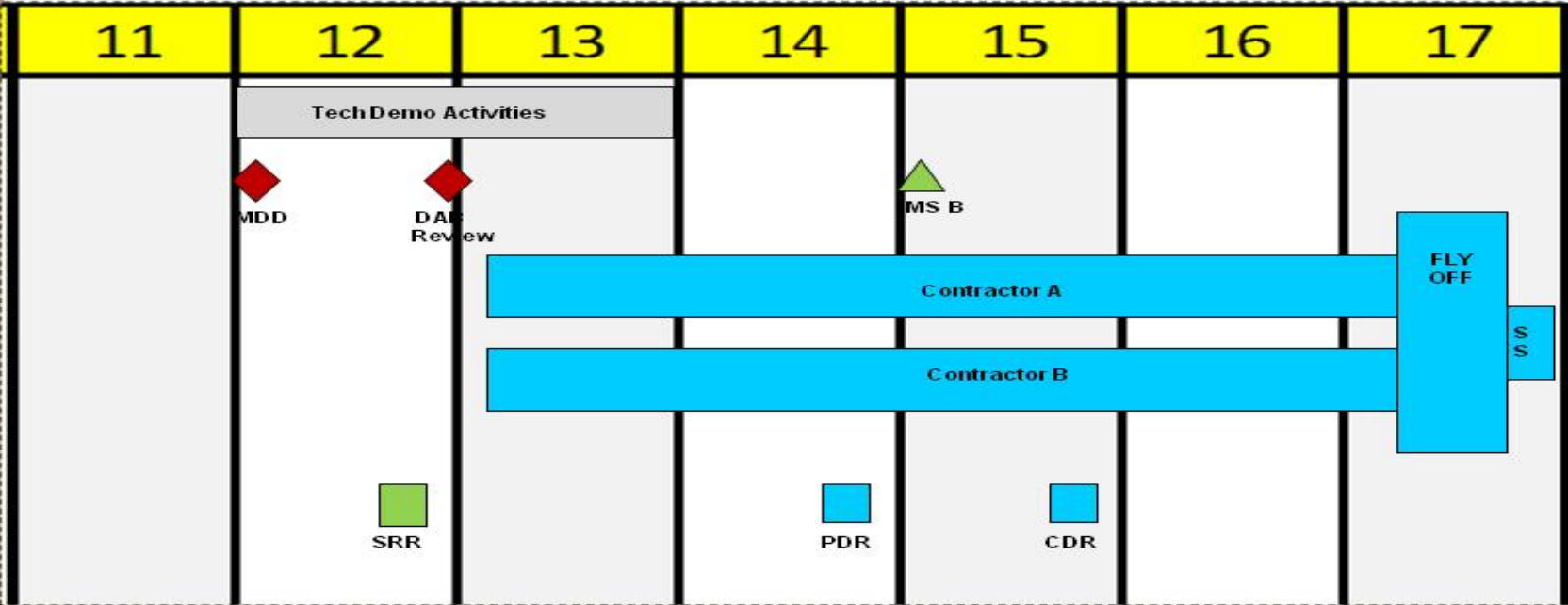
<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	Various	various:various	-	-		0.150	Nov 2012	-		0.150	68.517	68.667	
<b>Subtotal</b>			-	-		0.150		-		0.150	68.517	68.667	



Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy		DATE: February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: Marine Corps Assault Vehicles	<b>PROJECT</b> 0025: New Amphibious Vehicle



# AMPHIBIOUS COMBAT VEHICLE



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 0025: <i>New Amphibious Vehicle</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0025</b>				
Materiel Development Decision (MDD)	1	2012	1	2012
Systems Requirements Review (SRR)	3	2012	3	2012
DAB Review	4	2012	4	2012
Preliminary Design Review (PDR)	3	2014	3	2014
Milestone B (MS B)	1	2015	1	2015
Critical Design Review (CDR)	3	2015	3	2015

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603611M: <i>Marine Corps Assault Vehicles</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	-	25.000	-	-	-	-	-	-	-	0.000	25.000
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Amphibious Combat Vehicle (ACV) program meets the Marine Corps' requirement for self-deploying, fully amphibious vehicles, in order to maintain an amphibious forcible entry capability. The ACV will be included as part of the Marine Corps' integrated and complementary portfolio of combat vehicles critical to the future expeditionary Marine Air Ground Task force (MAGTF) operations.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2011	FY 2012
<b>Congressional Add:</b> New Amphibious Vehicle (Cong)	-	25.000
<b>FY 2012 Plans:</b> Perform Hull Survivability Demonstrator and Technology Integration Demonstration efforts. Provide concept design and analysis and test support. Provide engineering and technical services in support of vehicle integration architecture prototyping.		
<b>Congressional Adds Subtotals</b>	-	25.000

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	26.899	54.877	10.496	-	10.496	1.495	1.364	1.389	1.422	Continuing	Continuing
1964: <i>Anti-Armor Weapon System</i>	1.221	1.265	1.124	-	1.124	1.147	0.994	1.011	1.028	Continuing	Continuing
2614: <i>SMAW Follow-On</i>	7.314	6.746	9.372	-	9.372	0.348	0.370	0.378	0.394	Continuing	Continuing
3209: <i>Joint Light Tactical Vehicle</i>	18.364	46.866	-	-	-	-	-	-	-	0.000	65.230

**Note**

The Joint Light Tactical Vehicle (JLTV) program, Project number 3209 is transitioning to BA 04 PE 0605812M beginning in FY 2013

**A. Mission Description and Budget Item Justification**

This PE supports the demonstration and validation of Marine Corps Ground/Supporting Arms Systems for utilization in Marine Air-Ground Expeditionary Force amphibious operations.

This program is funded under DEMONSTRATION & VALIDATION because it develops and integrates hardware for experimental test related to specific ground weapon system.

**B. Program Change Summary (\$ in Millions)**

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	40.505	79.858	139.459	-	139.459
Current President's Budget	26.899	54.877	10.496	-	10.496
Total Adjustments	-13.606	-24.981	-128.963	-	-128.963
• Congressional General Reductions	-	-0.104			
• Congressional Directed Reductions	-	-24.877			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.190	-			
• SBIR/STTR Transfer	-0.164	-			
• Program Adjustments	-	-	-128.963	-	-128.963
• Rate/Misc Adjustments	-	-	-	-	-
• Congressional General Reductions Adjustments	-0.252	-	-	-	-
• Congressional Directed Reductions Adjustments	-12.000	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**  
1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
PE 0603635M: *Marine Corps Grnd Cmbt/Supt Sys*

**Change Summary Explanation**

Funding profile for JLTV in FY 2013 - FY 2017 reflects movement of the project to BA 04 PE 0605812M beginning in FY 2013



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 1964: <i>Anti-Armor Weapon System</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1964: <i>Anti-Armor Weapon System</i>	1.221	1.265	1.124	-	1.124	1.147	0.994	1.011	1.028	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Anti-Armor Weapons System-Heavy (AAWS-H) program, working in concert with the US Army, will develop and integrate technology improvements into the Improved Target Acquisition System (ITAS) to meet Increment II system requirements as jointly agreed. Improvements will center on integration of sight image enhancements, far-target location accuracy improvements, traversing unit upgrades/improvements, battlefield networking communications capability and a laser designation capability.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Contractor conducted systems integration and qualification</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Complete qualification of image enhancement improvements. Supported contractor integration and qualification of positioning antennae improvements to increase accuracy of the Saber far-target location accuracy improvements.</p> <p><b>FY 2012 Plans:</b> Complete qualification of Saber far-target location accuracy improvements. Support contractor development and qualification of Saber traversing unit improvements.</p> <p><b>FY 2013 Plans:</b> Assess improvements to the Saber laser subsystem to integrate/upgrade and qualify a laser marking and/or designation capability for supporting arms missions.</p>	<p>0.603</p> <p>0</p>	<p>0.638</p> <p>0</p>	<p>0.570</p> <p>0</p>
<p><b>Title:</b> Provide engineer and technical support</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Provided continued Army program management office engineering and test support for sight image enhancements and for the integration of far-target location accuracy improvements.</p> <p><b>FY 2012 Plans:</b> Provide continued Army program management office engineering and test support for the far-target location accuracy improvements and for the integration of traversing unit improvements.</p> <p><b>FY 2013 Plans:</b></p>	<p>0.310</p> <p>0</p>	<p>0.297</p> <p>0</p>	<p>0.269</p> <p>0</p>

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 1964: <i>Anti-Armor Weapon System</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Provide continued Army program management office engineering and test support for integration of the laser marker/designator upgrade.			
<b>Title:</b> Provide Government program management/in-house support.	0.308	0.330	0.285
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Provided continued USMC program management office engineering and test support for sight image enhancements and for the integration of far-target location accuracy improvements.			
<b>FY 2012 Plans:</b> Provide continued USMC program management office engineering and test support for the far-target location accuracy improvements and for the integration of traversing unit improvements.			
<b>FY 2013 Plans:</b> Provide continued USMC program management office engineering and test support for integration of the laser marker/designator upgrade.			
<b>Accomplishments/Planned Programs Subtotals</b>	1.221	1.265	1.124

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• 3017: <i>Anti Armor Weapon System</i>	20.210	19.606	20.708	0.000	20.708	1.333	1.365	1.393	1.429	0.000	66.044

**D. Acquisition Strategy**  
FY11-13 will develop, integrate, and qualify incremental improvements to the Saber system through a joint program with the Army to the original equipment manufacturer (OEM).q Strategy

**E. Performance Metrics**  
N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 1964: <i>Anti-Armor Weapon System</i>
---	---	---

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Anti Armor	C/CPIF	Raytheon:McKinney, TX	1.423	0.638	Mar 2012	0.570	Mar 2013	-		0.570	Continuing	Continuing	Continuing
<b>Subtotal</b>			1.423	0.638		0.570		-		0.570			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Anti Armor	WR	NSWC:Dahlgren, VA	0.571	0.297	Oct 2011	0.269	Oct 2012	-		0.269	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.571	0.297		0.269		-		0.269			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Anti Armor	C/CPIF	BAE Systems:Stafford, VA	0.633	0.330	Oct 2011	0.285	Oct 2012	-		0.285	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.633	0.330		0.285		-		0.285			

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			2.627	1.265		1.124		-		1.124			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 1964: <i>Anti-Armor Weapon System</i>
---	---	---

Proj 1964	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				

2013OSD - 0603635M - 1964

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 1964: <i>Anti-Armor Weapon System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 1964</b>				
PADS GPS Accuracy Improvement Testing	1	2011	4	2012
Laser Designation Testing	1	2013	4	2014
Battlefield Networking Testing	1	2014	4	2015
Traversing Unit Improvements Testing	1	2015	4	2016

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 2614: <i>SMAW Follow-On</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2614: <i>SMAW Follow-On</i>	7.314	6.746	9.372	-	9.372	0.348	0.370	0.378	0.394	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Shoulder-Launched Multipurpose Assault Weapon II (SMAW II). Marine Expeditionary Forces will employ the Shoulder-Launched Multipurpose Assault Weapon II (SMAW II) across the spectrum of conflict, under all environmental conditions, to destroy a variety of ground targets. This requirement relates to The Concept for Future Military Operations on Urbanized Terrain, dated 25 July 1997, which requires Marine units to possess the capability to rapidly breach urban structures in order to facilitate and enhance their mobility in an urban environment. The SMAW II will support the Joint Operating Concept, Major Combat Operations via the Force Application Joint Functional Concept.

The mission of the SMAW II is to provide short-range assault fires in support of infantry forces attacking fortified positions and urban structures under all field and environmental conditions. This includes employment under Mission Oriented Protective Posture (MOPP) IV Level CBRN conditions. A typical operating environment for the SMAW II will consist of a mission duration of 96 hours. During this mission the system will be transported 40 km (25 miles) in the field handling mode, using various tactical means, 50% cross country. The system will be employed in the offense in either close or open terrain and subsequently assigned defensive positions in depth along infantry and vehicle choke points." During the 96 hours, the expected combat load is six rounds of ammunition per system. The system is employed by a two-man team. The solution to the Follow-on-to-SMAW (FOTS) requirement is the SMAW II system, which will be developed in two distinct blocks. Block 1 of the SMAW II system consists of new SMAW launcher, which will be physically and functionally compatible with all current SMAW ammunition variants, and a Multipurpose (MP) Fire-From-Enclosure (FFE) SMAW round. Block 2 of the SMAW II system will be the addition of a Wall Breaching (WB) FFE round and a Common Practice (CP) FFE round. During FY11, the development of Block 1 will continue. During FY12, the Qualification of Block 1 will be completed and Low Rate Initial Production will commence. During FY12, the development of Block 2 will commence. During FY13, Full Rate Production of Block 1 will commence and the Qualification of Block 2 will be completed. In FY14, Full Rate Production of Block 1 will continue and Low Rate Initial Production of Block 2 will commence.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Contractor conducted systems integration and qualification.	4.653	1.470	4.868
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
Completed Block 1 Launcher Design Verification Test, Critical Design Review, Test Readiness Review. Completed Block 1 Launcher Qualification Hardware build and initiated Block 1 Launcher Qualification. Completed Block 1 Round Design Verification Test.			
<b>FY 2012 Plans:</b>			
Complete Block 1 Launcher Qualification, Functional Configuration Audit, System Verification Review, Production Readiness Review and Initial Operational Test & Evaluation. Complete Block 1 FFE Round Critical Design Review, Test Readiness Review,			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>		<b>PROJECT</b> 2614: <i>SMAW Follow-On</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
Qualification, Functional Configuration Audit, System Verification Review, and Production Readiness Review. Complete Block 2 FFE Round Milestone B, Design Verification Test, and Critical Design Review.		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>FY 2013 Plans:</b> Complete Block 1 Launcher Milestone C. Complete Block 1 FFE Round Qualification, Functional Configuration Audit, System Verification Review, Production Readiness Review and Initial Operational Test &amp; Evaluation. Complete Block 2 FFE Round Design Verification Test, Critical Design Review, Test Readiness Review, Qualification, Functional Configuration Audit, System Verification Review, Production Readiness Review, Initial Operational Test &amp; Evaluation, and Milestone C.</p> <p><b>Title:</b> Provide engineer and technical support.</p>		1.434	3.202	3.255
		<b>Articles:</b>	0	0
<p><b>FY 2011 Accomplishments:</b> Provided engineering support; planned and coordinated all required System Safety Reviews. Maintained the requirements engineering data to include review and acceptance of the deliverable draft Product Baseline. Continued to develop, refine and operate the Government independent 6-DOF flight simulation model of the SMAW II system. Established the SMAW II test range and conducted and provided review of all contract technical deliverables.</p> <p><b>FY 2012 Plans:</b> Provide engineering support for the Block 1 Launcher and Block 1 and 2 FFE Round development and testing. Provide review of all contract technical deliverables.</p> <p><b>FY 2013 Plans:</b> Provide engineering support for the Block 1 and 2 FFE Round development and testing. Provide review of all contract technical deliverables.</p>				
<p><b>Title:</b> Provide Government program management/in-house support.</p>		0.685	0.623	0.505
		<b>Articles:</b>	0	0
<p><b>FY 2011 Accomplishments:</b> Provided administrative and technical support to all programmatic and technical reviews; maintained programmatic documentation change management system; maintained CDRL deliverables review and management system; participated in all program IPTs; updated the SMAW II Supportability Plan and prepared all Acquisition Logistics documentation; maintained the SMAW II LCCE; provided EVMS analytical support; managed Action Item database.</p> <p><b>FY 2012 Plans:</b> Provide administrative and technical support to all programmatic and technical reviews; maintain programmatic documentation change management system; maintain CDRL deliverables review and management system; participate in all program IPTs;</p>				

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 2614: <i>SMAW Follow-On</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
update the SMAW II Supportability Plan and prepare all Acquisition Logistics documentation; maintain the SMAW II LCCE; provide EVMS analytical support; manage Action Item database.  <b>FY 2013 Plans:</b> Provide administrative and technical support to all programmatic and technical reviews; maintain programmatic documentation change management system; maintain CDRL deliverables review and management system; participate in all program IPTs; update the SMAW II Supportability Plan and prepare all Acquisition Logistics documentation; maintain the SMAW II LCCE; provide EVMS analytical support; manage Action Item database.			
<b>Title:</b> Provide operational test support planning and document preparation  <b>Articles:</b>	0.542 0	1.451 0	0.744 0
<b>FY 2011 Accomplishments:</b> Completed initial and final drafts of Operational Test and Evaluation (OT&E) Detailed Test Plan documentation; reviewed all DVT test reports and data; participated in the update to the TEMP; provided operational test expertise to all programmatic and technical reviews.  <b>FY 2012 Plans:</b> Complete all SMAW II Block 1 Launcher IOT&E planning; provide operational test expertise to all programmatic and technical reviews.  <b>FY 2013 Plans:</b> Conduct and report the results of the SMAW II Block 1 and 2 FFE Round IOT&E; provide operational test expertise to all programmatic and technical reviews.			
<b>Accomplishments/Planned Programs Subtotals</b>	7.314	6.746	9.372

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• PMC/301600: <i>Follow on to SMAW</i>	21.458	46.563	22.481	0.000	22.481	20.373	16.209	10.120	9.857	0.000	147.061

**D. Acquisition Strategy**  
FY11-13 strategy is to complete development and qualification of the Block 1 SMAW II system (i.e. new SMAW Launcher and new Multi Purpose Fire From Enclosure (MP FFE) round). FY12-13 strategy is to complete of the SMAW II Block 2 FFE Rounds (i.e. a new Wall Breaching (WB) FFE and Common Practice (CP) FFE rounds).



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 2614: <i>SMAW Follow-On</i>

**E. Performance Metrics**

Milestone Reviews; Technical Reviews; Earned Value Management data.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 2614: <i>SMAW Follow-On</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Integration	C/CPFF	Nammo Talley:Meza, AZ	24.532	1.470	Nov 2011	4.868	Nov 2012	-		4.868	Continuing	Continuing	Continuing
<b>Subtotal</b>			24.532	1.470		4.868		-		4.868			

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Spt	WR	NSWC:Dahlgren, VA	10.341	3.202	Nov 2011	3.255	Nov 2012	-		3.255	Continuing	Continuing	Continuing
<b>Subtotal</b>			10.341	3.202		3.255		-		3.255			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Testing and Support	WR	MCOTEA:Quantico, VA	2.803	1.451	Nov 2011	0.744	Nov 2012	-		0.744	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.803	1.451		0.744		-		0.744			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt and Engineering Support	C/CPIF	BAESystems:Stafford, VA	2.077	0.623	Nov 2011	0.505	Nov 2012	-		0.505	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.077	0.623		0.505		-		0.505			

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			39.753	6.746		9.372		-		9.372			



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2013 Navy</b>		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 2614: <i>SMAW Follow-On</i>

**SMAW II BLOCK II MASTER SCHEDULE**

	FY12	FY13	FY14	FY15	FY16	FY17
<b>PHASES AND MILESTONES</b>						
System Development & Demonstration	1/12		9/13			
Production & Deployment			9/13			
Milestones	1/12	9/13	9/14			
<b>CONTRACTUAL ACTIVITIES</b>						
SDD Contract Award	2/12					
FRP RFP Release		7/13				
FRP Contract Award			10/13			
<b>TECHNICAL REVIEWS</b>						
Critical Design Review	8/12					
Test Readiness Review	10/12					
System Verification Review		3/13				
Production Readiness Review			8/13			
<b>TESTING</b>						
DT						
Subsystem Qualification	2/12					
System Qualification		11/12				
IOT&E			4/13			

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 2614: <i>SMAW Follow-On</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2614</b>				
Block 2 - System Development & Demonstration	2	2012	4	2013
Block 2 - Milestone B	2	2012	2	2012
Block 2 - SDD Contract Award	2	2012	2	2012
Block 2 - Critical Design Review	4	2012	4	2017
Block 2 - Subsystem Qualification (FFE Round)	2	2012	4	2012
Block 2 - Test Readiness Review (FFE Round)	1	2013	1	2013
Block 2 - System Qualification (FFE Round)	1	2013	2	2013
Block 2 - Milestone C (FFE Round)	4	2013	4	2013
Block 2 - FRP RFP Release (FFE Round)	4	2013	4	2013
Block 2 - IOT&E (FFE Round)	3	2013	3	2013
Block 2 - FRP Contract Award (FFE Round)	1	2014	1	2014
Block 2 - System Verification Review (FFE Round)	2	2013	2	2013
Block 2 - Production Readiness Review (FFE Round)	4	2013	4	2013
Block 2 - Production & Deployment (FFE Round)	1	2014	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3209: <i>Joint Light Tactical Vehicle</i>	18.364	46.866	-	-	-	-	-	-	-	0.000	65.230
Quantity of RDT&E Articles	0	30	0	0	0	0	0	0	0		

**Note**

USMC will procure up to 30 prototypes. Additional hardware requirements for Engineering and Manufacturing Development (EMD) include trailers, ballistic hulls, and kits (including armor).

The FY11 NDAA directed the Services to separate the JLTV program into distinct program elements to provide Congress with increased transparency and allow for more effective oversight. Transition of funding from PE 0603635M to the new JLTV PE 0605812M is effective beginning in FY13.

**A. Mission Description and Budget Item Justification**

Funding supports the development and testing of the JLTV Family of Vehicles (FoV), which is a joint program between the Army and the Marine Corps. The JLTV goal is a FoV capable of performing multiple mission roles designed to provide protected, sustained, networked mobility for personnel and payloads across the full Range of Military Operations. JLTV objectives include increased protection and performance over the current fleet and minimizing ownership costs by maximizing commonality, fuel efficiency, reliability, and maintaining effective competition throughout the lifecycle. Commonality of components, maintenance procedures, training, etc., between vehicles is expected to be inherent in FoV solutions across mission variants to minimize total ownership cost. Unique service requirements have been minimized.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Prototype Article</p> <p align="right"><b>Articles:</b></p>	-	26.075 30	-
<p><b>FY 2012 Plans:</b> Material procurement and fabrication of EMD prototypes. Vehicle deliveries occur in FY13.</p>			
<p><b>Title:</b> Primary and Ancillary Hardware Development , Systems Engineering (SE)</p> <p align="right"><b>Articles:</b></p>	6.789 0	8.398 0	-
<p><b>FY 2011 Accomplishments:</b> Closed out Technology and Development (TD) phase contracts and test support. Took delivery of CAT A Enhanced Protection (EP) variant prototypes. Prepared RFP for EMD. Conducted Systems Engineering (SE) related Milestone B engineering analysis.</p> <p><b>FY 2012 Plans:</b> Award multiple Engineering and Manufacturing Development (EMD) contracts to design JLTV Mission Role Variants and systems engineering activities in support of progression to MS B decision and RFP development.</p>			
<p><b>Title:</b> GFE Procurement to Support Product Development and Testing</p>	3.465	2.732	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
		<b>Articles:</b>	0	0
<b><i>FY 2011 Accomplishments:</i></b> Procured Government Furnished Equipment (GFE) long lead items required to support EMD prototype integration efforts. EMD contracts award in FY12.				
<b><i>FY 2012 Plans:</i></b> Procure GFE items required to support EMD prototype integration efforts.				
<b>Title:</b> Test and Evaluation Events & Analysis		2.373	2.220	-
		<b>Articles:</b>	0	0
<b><i>FY 2011 Accomplishments:</i></b> Completed TD phase T&E activities. Completed Cat A Enhanced Protection (EP) testing. Conducted User Evaluations and prototype ballistic testing. Produced and staffed T&E reports. Supported EMD source selection activities and Milestone B preparations.				
<b><i>FY 2012 Plans:</i></b> Support EMD source selection activities and Milestone B preparations. Conduct coupon testing.				
<b>Title:</b> ILS and Facilities Documentation/Analysis and Support Engineering		0.824	1.609	-
		<b>Articles:</b>	0	0
<b><i>FY 2011 Accomplishments:</i></b> Completed facilities analysis, supported GFE management, source selection activities, and Milestone B preparations.				
<b><i>FY 2012 Plans:</i></b> Continue the development of logistical documentation, support Milestone (MS) B preparations, GFE management, and provide oversight to programmatic and contractual issues related to logistics.				
<b>Title:</b> Program Management Support		4.913	5.832	-
		<b>Articles:</b>	0	0
<b><i>FY 2011 Accomplishments:</i></b> Continued support of program operations and Milestone B/EMD planning activities.				
<b><i>FY 2012 Plans:</i></b> Continue support of program operations and planning activities. Key events include source selection activities, EMD contract awards and the start of EMD design, and attainment of MS B.				
<b>Accomplishments/Planned Programs Subtotals</b>		18.364	46.866	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>			<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• PMC / 5095: <i>JLTV</i>	0.000	0.000	0.000	0.000	0.000	0.000	24.500	87.300	134.900	2,102.100	2,348.800
• RDTEA / L04: <i>0603804A- Log &amp; Eng Equip Adv Dev - JLTV</i>	36.408	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.408
• RDTEA / L50: <i>0604804A- Log &amp; Eng Equip ENG Dev - JLTV</i>	0.000	87.217	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.217
• RDTEA / VU9: <i>0605812A</i>	0.000	0.000	72.295	0.000	72.295	76.163	31.549	51.924	53.223	Continuing	Continuing
• RDTEA / 3209: <i>0605812M-JLTV</i>	0.000	0.000	44.500	0.000	44.500	45.000	16.000	40.100	44.300	Continuing	Continuing
• OPA / D15603: <i>JLTV</i>	0.000	0.000	0.000	0.000	0.000	0.000	167.408	299.238	516.722	Continuing	Continuing

**D. Acquisition Strategy**

JLTV is a Joint Services Program with the U.S. Army and Marine Corps as the two main components. The Navy anticipates procuring JLTV vehicles upon successful Low Rate Initial Production (LRIP) testing.

The program will use an evolutionary approach to deliver capabilities in increments based on program priorities. All technologies entering the current EMD phase shall be no less than Technology Readiness Level 6 to achieve Capabilities Development Document (CDD) requirements.

Increment I will produce two Mission Role Variant (MRV) configurations (Combat Tactical Vehicle - CTV & Combat Support Vehicle - CSV) and four mission packages (General Purpose, Heavy Guns Carrier, Close Combat Weapons Carrier, Utility). EMD vendors will fabricate representative mission packages from both MRVs, which the Government will fully test during EMD.

Through a full and open competition, the program anticipates awarding up to three contracts for the EMD phase. Unless future market research identifies a valid non-EMD vendor capable of delivering the required capabilities, there will be a down-select from the EMD contractors to enter into the Production and Deployment phase. The down-select will result in a fixed price type contract with a base LRIP quantity, LRIP options, full rate production options, and a Technical Data Package option.

Follow-on increment II will focus on vehicles requiring more internal volume and payload carrying capacity (e.g., ambulances) or those that include higher risk because of geometric and low curb weight requirements (e.g., CH-47F internally transportable vehicles).

**E. Performance Metrics**

Milestone Reviews



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development - TD	C/CS	BAE Systems:Santa Clara, CA	31.865	-		-		-		-	0.000	31.865	31.865
Primary Hardware Development - TD	C/CS	General Tactical Vehicles:Sterling, MI	25.738	-		-		-		-	0.000	25.738	25.738
Primary Hardware Development - TD	C/CS	Lockheed Martin:Owego, NY	26.966	-		-		-		-	0.000	26.966	26.966
Primary Hardware Development - EMD	C/FP	TBD:Various	-	7.440	Jun 2012	-		-		-	0.000	7.440	
Systems Engineering	C/CPFF	Various:Various	6.915	0.308	Mar 2012	-		-		-	0.000	7.223	
Systems Engineering- Human Systems Integration	WR	NSWC:Dahlgren	0.505	0.300	Feb 2012	-		-		-	0.000	0.805	
Systems Engineering- Force Protection	WR	NSWC:Carderock	0.275	0.150	Feb 2012	-		-		-	0.000	0.425	
Systems Engineering- Toolkit	C/CPFF	ARL:Penn State	0.800	0.200	Apr 2012	-		-		-	0.000	1.000	
Government Furnished Equipment (GFE)	MIPR	Various:Various	4.721	2.732	May 2012	-		-		-	0.000	7.453	
JLTV Tech Demonstrator Design and Eval	C/CPFF	NATC:Carson City, NV	1.414	-		-		-		-	0.000	1.414	
Prototype	C/FP	TBD:Various	5.400	26.075	Jun 2012	-		-		-	0.000	31.475	
Source Selection	MIPR	TBD:Various	5.500	-		-		-		-	0.000	5.500	
<b>Subtotal</b>			110.099	37.205		-		-		-	0.000	147.304	

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Training Development	WR	WBB:Indian Head, MD	1.434	0.119	Feb 2012	-		-		-	0.000	1.553	
Integrated Logistics Support	Various	Various:Various	7.462	1.190	Mar 2012	-		-		-	0.000	8.652	
SPAWAR GFE Mgmt	MIPR	SPAWAR:Charleston, SC	0.300	0.300	May 2012	-		-		-	0.000	0.600	
<b>Subtotal</b>			9.196	1.609		-		-		-	0.000	10.805	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental, Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Aberdeen Proving Grounds:Aberdeen, MD	2.715	1.671	Mar 2012	-		-		-	0.000	4.386	
Developmental, Test & Evaluation (Interoperability )	MIPR	JITC:Various	0.101	-		-		-		-	0.000	0.101	
Developmental, Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Yuma Proving Ground:Yuma, AZ	7.305	-		-		-		-	0.000	7.305	
Developmental, Test & Evaluation (Oversight )	WR	MCOTEA:Various	0.581	0.549	Mar 2012	-		-		-	0.000	1.130	
Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Various:Various	3.691	-		-		-		-	0.000	3.691	
<b>Subtotal</b>			14.393	2.220		-		-		-	0.000	16.613	

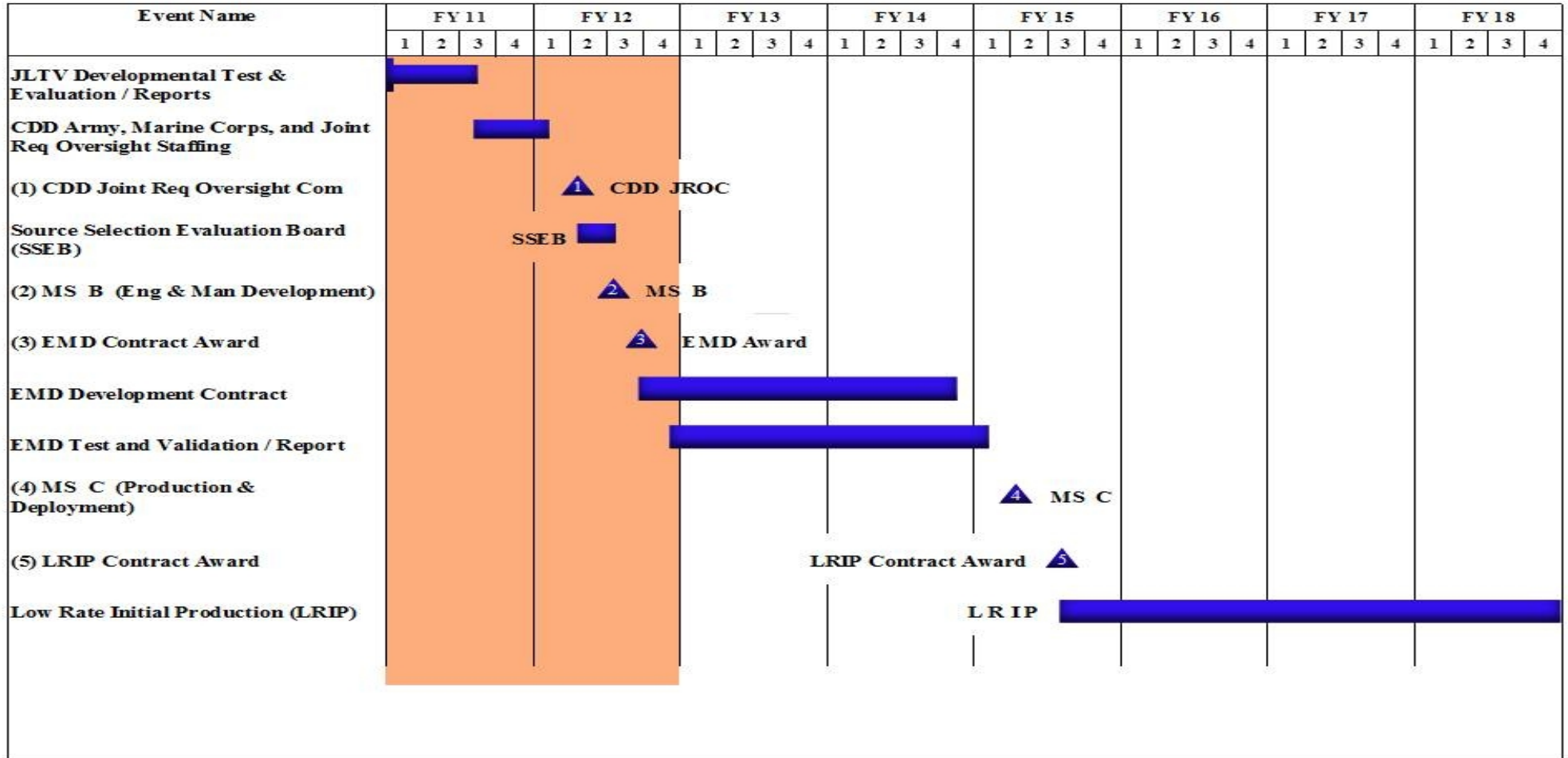
<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support	C/FFP	SAIC:Dumfries, VA	8.128	-		-		-		-	0.000	8.128	8.128
Program Management Support	C/CPFF	BAH:McLean, VA	13.989	2.702	Mar 2012	-		-		-	0.000	16.691	
Program Management Support	C/CPFF	Various:Various	0.948	1.704	Mar 2012	-		-		-	0.000	2.652	
Program Management Support	C/CPFF	MITRE:Stafford	2.656	0.700	Feb 2012	-		-		-	0.000	3.356	
Program Management Support- ESOH Support	C/FFP	Eagan McAllister:Lexington Park, MD	0.465	0.500	Mar 2012	-		-		-	0.000	0.965	



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603635M: <i>Marine Corps Grnd Cmbt/Supt Sys</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3209</b>				
CDD Army, Marine Corps, and Joint Req Oversight Staffing	3	2011	1	2012
CDD JROC	2	2012	2	2012
Source Selection	2	2012	3	2012
MS B Decision	3	2012	3	2012
EMD Contract Award	3	2012	3	2012
EMD Development Contracts	3	2012	4	2014
EMD Government Test Program and Validation Reporting	4	2012	1	2015
MS C Decision	2	2015	2	2015
LRIP Contract Award	3	2015	3	2015

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	31.354	35.154	52.331	4.600	56.931	41.181	28.632	32.915	33.595	Continuing	Continuing
0377: <i>JT Service Expl Ord Disp System</i>	22.554	19.435	27.536	-	27.536	21.520	13.772	13.026	13.289	Continuing	Continuing
1317: <i>EOD Diving System</i>	3.536	3.234	4.340	-	4.340	2.690	2.691	4.647	4.742	Continuing	Continuing
3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>	0.467	-	-	4.600	4.600	-	-	-	-	0.000	5.067
4023: <i>VSW MCM/Force Protection UUV</i>	4.797	12.485	20.455	-	20.455	16.971	12.169	15.242	15.564	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This is a Joint Service Program. This program provides for the development of Explosive Ordnance Disposal tools and equipment for use by all military services. The responsibility is assigned to the Navy as single service manager, by Department of Defense Directive 5160.62 of 26 April 1989, for management of the Joint Service Explosive Ordnance Disposal Research and Development Program. Proliferation of sophisticated types of foreign and domestic ordnance and Improvised Explosive Devices necessitate a continuing development program to provide Explosive Ordnance Disposal personnel of all military services with the special equipment and tools required to support this mission. This program also provides life support related equipment necessary to support the performance of Navy Explosive Ordnance Disposal tasks underwater. This equipment must have inherently low acoustic and magnetic signatures in order to allow the Explosive Ordnance Disposal technician to safely approach, render-safe and dispose of sea mines and other underwater ordnance. This program also provides force protection of all military services against Radio Controlled Improvised Explosive Devices (RCIED) to prevent initiation. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Electronic Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet joint requirements.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603654N: <i>JT Service Explosive Ordn Dev</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	25.873	33.654	50.659	-	50.659
Current President's Budget	31.354	35.154	52.331	4.600	56.931
Total Adjustments	5.481	1.500	1.672	4.600	6.272
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.775	-			
• SBIR/STTR Transfer	-0.163	-			
• Program Adjustments	1.000	1.500	2.135	4.600	6.735
• Rate/Misc Adjustments	-	-	-0.463	-	-0.463
• Congressional General Reductions Adjustments	-0.131	-	-	-	-

**Change Summary Explanation**

Program Adjustments: FY13 \$6,272K in Total Adjustments: Increase Joint Crew OCO (\$4,600K) and decrease for MISC Adjustments (\$1,672K).



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>				<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0377: <i>JT Service Expl Ord Disp System</i>	22.554	19.435	27.536	-	27.536	21.520	13.772	13.026	13.289	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Provides Explosive Ordnance Disposal personnel of all military services with the specialized equipment and tools required to support their mission of detection/location, identification, render-safe, recovery, field and laboratory evaluation, and disposal of unexploded ordnance (UXO) that is a threat to military operations, installations, personnel, or material. UXO includes foreign and domestic, both conventional and non-conventional, including Improvised Explosive Devices (IEDs). High Fidelity Weapons Mass Destruction performs detection and identification of hazardous materials contained in devices using radiological and biological means. Advanced EOD Robot System (AEODRS) consists of multiple interoperable robot systems. The first class of robot and the architecture for the system will be developed first, then the other classes of robots will be developed. Project Unit 0377: FY11-FY12 OCO Request: Continuous Improvement for the MK1 & MK2 Joint Service EOD robots used by EOD technicians when responding to IED incidents in OIF and OEF.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
<b>Title:</b> EOD FUTURE RADIOGRAPHIC SYSTEMS (FRS) AND EOD DECISION SUPPORT SYSTEMS (DSS) <b>Articles:</b>	4.657 0	4.389 0	6.150 0	-	6.150 0
<b>FY 2011 Accomplishments:</b> Conducted development of incremental capabilities for the JEOD Decision Support System (DSS) and Future Radiographic System (FRS).					
<b>FY 2012 Plans:</b> Develop Continuous Improvements of incremental capabilities for JEOD Decision Support System (DSS) and continue development of Future Radiographic Systems (FRS).					
<b>FY 2013 Base Plans:</b> Continue development of increment one capabilities for Future Radiographic System (FRS) and incremental improvements to capability for the Decision Support System (DSS).					
<b>Title:</b> HIGH FIDELITY WEAPONS MASS DESTRUCTION (WMD) IDENTIFICATION AND DETECTION <b>Articles:</b>	3.144 0	5.700 0	7.702 0	-	7.702 0
<b>FY 2011 Accomplishments:</b>					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy			<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>		<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
Initiated project to expand EOD's capability to detect and/or identify potential Weapons Mass Destruction (WMD) threats.					
<b>FY 2012 Plans:</b> Continue to develop a family of systems to address the capabilities gaps in detection and identification of Weapons Mass Destruction (WMD) threats.					
<b>FY 2013 Base Plans:</b> Continue development and testing of systems within a family of systems addressing capability gaps associated with identification and detection of WMD.					
<b>Title:</b> EOD ROBOTICS					
<b>Articles:</b>					
	4.000	5.063	11.547	-	11.547
	0	0	0		0
<b>FY 2011 Accomplishments:</b> Continued development of Advanced EOD Robot System and develop improved capabilities for existing EOD robot configurations.					
<b>FY 2012 Plans:</b> Continue development of Advanced EOD Robot System and develop improved capabilities for existing EOD robot configurations.					
<b>FY 2013 Base Plans:</b> Continue development of a family of Advanced EOD Robotic of Systems to fill capability gaps and develop improved capabilities for existing EOD Robotic platforms.					
<b>Title:</b> TCM AN/PLT-XXX SYSTEMS/ELECTRONIC SAFE/ARM FUZES					
<b>Articles:</b>					
	3.164	1.741	2.137	-	2.137
	0	0	0		0
<b>FY 2011 Accomplishments:</b> Initiated project to develop capability to determine the state of (or neutralize) Electronic Safe/Arm Fuzes for EOD purpose.					
<b>FY 2012 Plans:</b> Continue project development capabilities to determine the state of (or neutralize) Electronic Safe/Arm Fuzes for EOD purpose.					
<b>FY 2013 Base Plans:</b>					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy				<b>DATE:</b> February 2012	
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>		<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
Continue improvements to loadsets for fielded EOD TCM systems based upon changing threats and continue monitoring and development of capabilities to determine the state of and defeat electronic safe-arm fuzes.					
<b>Title:</b> JUONS 0412 and JUONS 0315					
<b>Articles:</b>					
<b>FY 2011 Accomplishments:</b> Develop alternative solutions for the MTRS MK-2 Robot and development of Aided Target Recognition (AiTR) to the Standoff Suicide Bomber Detection System (SSBDS) upgrades to eliminate the threat of Personnel Borne IED attacks.					
<b>Title:</b> UNMANNED AERIAL SYSTEMS					
<b>Articles:</b>					
<b>FY 2011 Accomplishments:</b> Continued development of Unmanned Aerial Systems Capabilities for the EOD community.					
<b>FY 2012 Plans:</b> Continue development of Unmanned Aerial Systems Capabilities for the EOD community.					
<b>Title:</b> EOD ROBOTICS OCO					
<b>Articles:</b>					
<b>FY 2011 Accomplishments:</b> Planned Program OCO (\$1M): Continued Improvements for the MK1 and MK2 Joint Service EOD robots used by EOD technicians when responding to IED incidents in OIF and OEF. Funding required to provide for development of these theater specific tools.					
<b>FY 2012 Plans:</b> OCO: Joint Service EOD Robot Continuous Improvement - The MK 1 and MK 2 EOD robots are the primary tool used by EOD technicians when responding to IED incidents in OEF-A. There are unique tools for robot uses that need to be developed to counter emergent threats in both theaters (OED-A and OND) that are not part of the current program of record. Funding is required to provide for development of these theater specific tools.					
<b>Accomplishments/Planned Programs Subtotals</b>					

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>
---	---	--

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/5509: <i>EOD Equipment (VN075)</i>	2.000	13.200	0.000	0.000	0.000	16.700	14.242	12.676	8.531	0.000	72.652

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

**E. Performance Metrics**

Conducted Full Rate Production Decision Review for JEOD Decision Support System (DSS), initiating production. Conducted Interim Progress Review for EOD Future Radiographic System (FRS).

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development	WR	EODTD:Indian Head, MD	124.334	11.041	Oct 2011	16.886	Oct 2012	-		16.886	Continuing	Continuing	Continuing
Software Development	WR	EODTD:Indian Head, MD	20.234	2.500	Oct 2011	3.600	Oct 2012	-		3.600	Continuing	Continuing	Continuing
ILS	WR	EODTD:Indiah Head, MD	44.670	1.850	Oct 2011	1.000	Oct 2012	-		1.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			189.238	15.391		21.486		-		21.486			

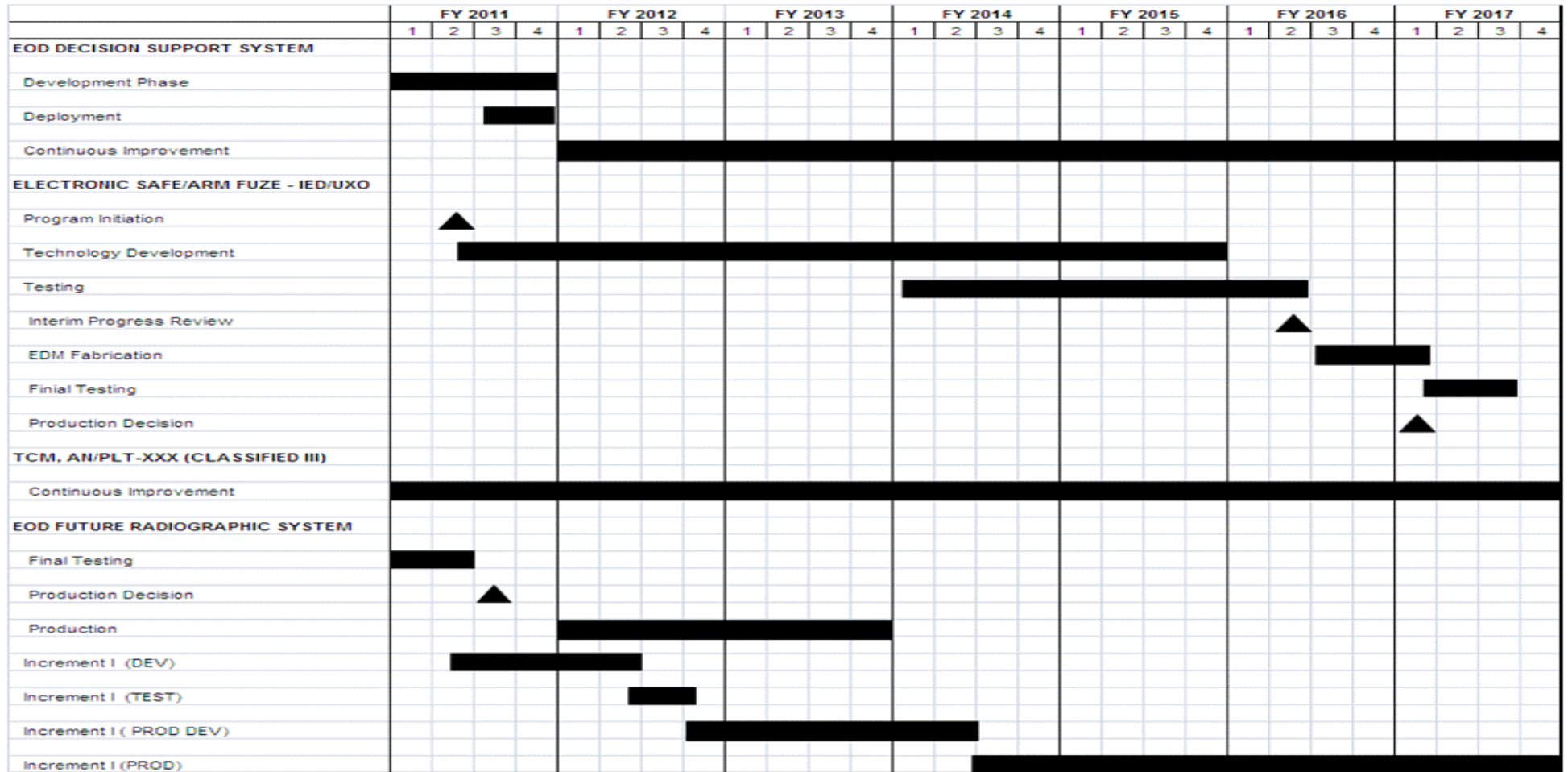
<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support	C/CPFF	ITT:Arlington, VA	6.271	0.176	Oct 2011	0.550	Oct 2012	-		0.550	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.271	0.176		0.550		-		0.550			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	EODTD:Indian Head, MD	70.647	2.302	Oct 2011	4.000	Oct 2012	-		4.000	Continuing	Continuing	Continuing
Operation Test & Evaluation	WR	EODTD:Indian Head, MD	9.933	0.300	Oct 2011	0.500	Oct 2012	-		0.500	Continuing	Continuing	Continuing
<b>Subtotal</b>			80.580	2.602		4.500		-		4.500			



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>







**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0377</b>				
Title: EOD DECISION SUPPORT SYSTEM	1	2011	4	2017
Development Phase 1	1	2011	4	2011
Deployment 1	3	2011	4	2011
Continous Improvement 1	1	2012	4	2017
Title: ELECTRONIC SAFE/ARE FUZE -IED/UXO	1	2011	4	2017
Program Initiation 1	2	2011	2	2011
Technology Development 3	2	2011	4	2015
Testing 1	1	2014	2	2016
Interim Progress Review 1	2	2016	2	2016
EDM Fabrication 1	3	2016	1	2017
Final Testing 1	1	2017	3	2017
Production Decision 1	1	2017	1	2017
Title: TCM, AN/PLT-XXX (CLASSIFIED III)	1	2011	4	2017
Continous Improvement 2	1	2011	4	2017
Title: EOD FUTURE RADIOGRAPHIC SYSTEM	1	2011	4	2017
Final Testing 2	1	2011	3	2011
Production Decision 2	3	2011	3	2011
Production 2	1	2012	4	2013
Increment I (DEV)	2	2011	2	2012
Increment I (TEST)	2	2012	4	2012
Increment I (PROD DEV)	3	2012	2	2014

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 0377: <i>JT Service Expl Ord Disp System</i>
---	---	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Increment I (PROD)	3	2014	4	2017
Title: EOD UNMANNED AERIAL SYSTEM	1	2011	4	2012
Development 5	1	2011	2	2012
Testing 3	2	2012	4	2012
Title: JS EOD WMD	1	2011	4	2017
Program Initiation 3	1	2011	1	2011
Research	2	2011	4	2013
Testing 4	4	2011	2	2013
Procurement	3	2012	2	2016
Increment I (RESEARCH)	1	2013	4	2016
Increment I (TESTING)	4	2013	1	2015
Increment I (PROD DECISION)	2	2015	2	2015
Increment II (RESEARCH)	2	2015	4	2017
Title: ADVANCED EOD ROBOT SYSTEM	1	2011	4	2017
Development # 1	1	2011	2	2012
Program Review 1	3	2012	3	2012
Testing (#1)	2	2012	2	2013
Production Decision (#1)	2	2013	2	2013
Development (# 2 & 3)	1	2013	3	2015
Program Review 2	2	2014	2	2014
Testing (# 2 & 3)	4	2014	4	2015
Limited Production Decision (# 2 & 3)	4	2015	4	2015
Production 3 (INC 1, 2 & 3)	1	2014	4	2017
Continous Improvement 3	1	2015	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 1317: <i>EOD Diving System</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1317: <i>EOD Diving System</i>	3.536	3.234	4.340	-	4.340	2.690	2.691	4.647	4.742	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Provides for development of Diver Safety/Life Support Equipment, Advanced Diver Integrated Sensors and Advanced Firing Systems to support Navy Explosive Ordnance Disposal (EOD) underwater operations. The equipment must have inherently low acoustic and magnetic signatures in order to allow the EOD divers to safely approach, render-safe, recover, exploit, and dispose of underwater explosive threats to include sea mines, limpet mines and unexploded ordnance. This project supports the Naval Mine Warfare Certification Plan.

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

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
<b>Title:</b> DIVER SAFETY & LIFE SUPPORT SYSTEMS	0.879	1.759	2.118	-	2.118
<b>Articles:</b>	0	0	0	-	0
<b>Description:</b> Diver Safety & Life Support Systems: Develop diver safety tools to include more capable life support systems for EOD, and Mobile Diving & Salvage Units (MDSU) operations. Specific tools include but are not limited to Underwater Breathing Apparatus (UBA), specialized dive masks, heads-up displays, and emergency life support systems.					
<b>FY 2011 Accomplishments:</b> Completed testing and gained approval for use for the VSW/MCM UBA. Completed METRES testing.					
<b>FY 2012 Plans:</b> Initiate a VSW/MCM UBA program to develop modern and safer UBA. Develop and test UW Lift System for EOD and VSW/MCM missions.					
<b>FY 2013 Base Plans:</b> Continue acquisition efforts to develop, test and field future EOD and Underwater Mine Countermeasures (UMCM) UBA in accordance with OPNAV approved requirements.					
<b>Title:</b> ADVANCED DIVER INTEGRATED SENSORS	2.207	1.225	1.461	-	1.461
<b>Articles:</b>	0	0	0	-	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy				<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>		<b>PROJECT</b> 1317: <i>EOD Diving System</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
<b>Description:</b> Develop Advanced Diver Integrated Sensors equipment to enhance EOD and MDSU ability to detect, neutralize and gather intelligence on underwater targets of interest. Requirements include Diver Hull Inspection Navigation System (DHINS) and improvements to the Underwater Imaging System (UIS).						
<b>FY 2011 Accomplishments:</b> Developed and inserted mature technologies to the DHINS and UIS as part of a continuous improvement program (CIP) to enhance performance in harsh environments.						
<b>FY 2012 Plans:</b> Conduct testing of diver held sensors. As part of a Continuous Improvement Program (CIP) develop and test technologies for integration into DHINS and UIS.						
<b>FY 2013 Base Plans:</b> Initiate an acquisition initiative to field the next generation EOD and UMCM diver based sensor and navigation system. Continue to upgrade DHINS with fleet recommended engineering changes.						
<b>Title:</b> ADVANCED FIRING SYSTEM						
<b>Articles:</b>						
		0.450	0.250	0.761	-	0.761
		0	0	0		0
<b>Description:</b> Develops new acquisitions and product improvements to existing systems for below and above water neutralization of underwater threats to support EOD and MDSU operations.						
<b>FY 2011 Accomplishments:</b> Tested improvements to the AFS to enhance system effectiveness. Initiated Weapons System Explosives Safety Review.						
<b>FY 2012 Plans:</b> Conduct Analysis Of Alternative (AOA). Develop improvements to AFS to increase system performance and capabilities.						
<b>FY 2013 Base Plans:</b> Continue implementing upgrades in accordance with OPNAV approved requirements and validate system performance.						
<b>Accomplishments/Planned Programs Subtotals</b>		3.536	3.234	4.340	-	4.340

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 1317: <i>EOD Diving System</i>
---	---	--

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

Line Item	FY 2011	FY 2012	FY 2013	FY 2013	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN/0977a: <i>Underwater EOD Program (Cost Code UQ034)</i>	8.900	4.800	5.000	0.000	5.000	6.230	6.154	4.000	2.710	0.000	39.994
• 0340: <i>PANMC</i>	0.000	0.679	0.000	0.000	0.000	0.000	0.000	1.593	0.106	0.000	2.594
• OPN/0977b: <i>UW EOD (UQ036)</i>	0.000	1.200	0.000	0.000	0.000	2.000	1.200	1.700	2.400	0.000	8.500

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisition strategies of the most cost-effective solution over the sub-projects life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included.

**E. Performance Metrics**

Research and Develop technologies for the design of Diver Safety Systems, Advanced Diver Integrated Sensors and Advanced Underwater Firing Systems used to render safe, recover, exploit, and dispose of sea limpet mines and unexploded ordnance.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 1317: <i>EOD Diving System</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development	WR	EODTECHDIV:IH, MD	39.202	0.795	Oct 2011	1.079	Oct 2012	-		1.079	Continuing	Continuing	Continuing
Software Development	WR	EODTECHDIV:IH MD	3.792	0.264	Oct 2011	0.359	Oct 2012	-		0.359	Continuing	Continuing	Continuing
Systems Engineering	WR	EODTECHDIV:IH MD	8.228	-		-		-		-	0.000	8.228	
ILS	WR	EODTECHDIV:IH MD	11.916	-		-		-		-	0.000	11.916	
Systems Engineering	WR	NSWC:Panama City	1.070	0.231	Oct 2011	0.315	Oct 2012	-		0.315	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR:San Diego	2.000	0.461	Oct 2011	0.629	Oct 2012	-		0.629	Continuing	Continuing	Continuing
<b>Subtotal</b>			66.208	1.751		2.382		-		2.382			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support1	C/CPFF	ITT:Arlington VA	3.537	-		-		-		-	0.000	3.537	
Program Management Support2	C/CPFF	ITT:Arlington VA	2.481	0.405	Oct 2011	0.364	Oct 2012	-		0.364	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	Not Specified:Not Specified	-	-		-		-		-	0.000	0.000	
Configuration Management	WR	Not Specified:Not Specified	-	-		-		-		-	0.000	0.000	
Technical Data	WR	Not Specified:Not Specified	-	-		-		-		-	0.000	0.000	
GFE	WR	Not Specified:Not Specified	-	-		-		-		-	0.000	0.000	
Award Fees	WR	Not Specified:Not Specified	-	-		-		-		-	0.000	0.000	
<b>Subtotal</b>			6.018	0.405		0.364		-		0.364			



**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 1317: <i>EOD Diving System</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Advanced Firing Systems</b>																												
Systems Integration/Testing	█																█											
Systems Integration/Testing (Continue)																	█											
Production Decision/ECP Approval									▲								▲											
Production Decision/ECP Approval (Continue)													█															
Production/Fleet Retrofit																	█											
Production/Fleet Retrofit (Continue)																	█											
Production/Fleet Retrofit (Continue)																	█											
<b>Diver Safety &amp; Life Support</b>																												
Systems Integration/Testing	█								█								█											
Systems Integration/Testing (Continue)	█								█								█											
Production Decision/ECP Approval	▲												▲															
Production Decision/ECP Approval (Continue)																	█											
Production Decision/ECP Approval (Continue)																	▲											
Production Decision/ECP Approval (Continue)																	█											
Production/Fleet Retrofit (Continue)	█								█								█											
Production/Fleet Retrofit (Continue)	█								█								█											
<b>Advanced Diver Integrated Sensors</b>																												
Systems Integration/Testing	█								█								█											
Production Decision/ECP Approval (Continue)									▲																			
Production Decision/ECP Approval (Continue)																	▲											
Production/Fleet Retrofit	█								█								█											
Production/Fleet Retrofit (Continue)	█								█								█											



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 1317: <i>EOD Diving System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 1317</b>				
Title: ADVANCED FIRING SYSTEMS	1	2011	4	2017
System Integration/Testing 1	1	2011	4	2012
System Integration/Testing (Continue)	1	2014	2	2014
Production Decision/ECP Approval1	4	2012	4	2012
Production Decision/ECP Approval (Continue) 1	2	2014	2	2014
Production/Fleet Retrofit (Continue) 1	1	2013	4	2013
Production/Fleet Retrofit (Continue) 2	2	2014	4	2017
Title: DIVER SAFETY & LIFE SUPPORT	1	2011	4	2017
System Integration/Testing 2	1	2011	2	2014
Systems Integration/Testing (Continue)	1	2015	4	2017
Production Decision/ECP Approval (Continue) 2	1	2011	1	2011
Production Decision/ECP Approval (Continue) 3	4	2013	4	2013
Production Decision/ECP Approval (Continue)	4	2015	4	2015
Production/Fleet Retrofit (Continue) 3	1	2011	4	2012
Production/Fleet Retrofit (Continue) 4	2	2014	4	2016
Title: ADVANCED DIVER INTEGRATED SENSORS	1	2011	4	2017
System Integration/Testing 3	1	2011	4	2017
Production Decision/ECP Approval (Continue) 5	2	2012	2	2012
Production Decision/ECP Approval (Continue) 6	2	2015	2	2015
Production/Fleet Retrofit 3	1	2011	4	2013
Production/Fleet Retrocit (Continue)	2	2015	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>	0.467	-	-	4.600	4.600	-	-	-	-	0.000	5.067
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Provides for the research, development, for all military services against Radio Controlled Improvised Explosive Devices (RCIED) to prevent initiation. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Electronic Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet joint requirements. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted and fixed site operations. CREW development to make rapid improvements to performance, supportability and affordability.

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

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
<b>Title:</b> Joint Counter Radio-Controlled IED Elec Warfare	0.467	-	-	-	-
<b>Articles:</b>	0				
<b>FY 2011 Accomplishments:</b> Provided development, testing, and evaluation of Joint CREW modeling and simulation efforts and upgrades to Joint CREW tactical decision aids.					
<b>Title:</b> JOINT CREW OCO	-	-	-	4.600	4.600
<b>Articles:</b>			0	0	0
<b>FY 2013 Base Plans:</b> N/A					
<b>FY 2013 OCO Plans:</b> OCO: JOINT CREW - New techniques and threat loads will be needed to support delivered systems in order to address in-theater priority threats, including threat analysis, procurement of test assets, building of threat libraries, etc.					
<b>Accomplishments/Planned Programs Subtotals</b>	0.467	-	-	4.600	4.600

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

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost effective solution over subprojects' life-cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included. Procurements across the services will be combined to gain quantity discounts.

**E. Performance Metrics**

Gate 6 Milestone B complete 10 Jul 2009; Contract for preliminary design review awarded 01 Oct 2009; Milestone C anticipated Q4 FY11.



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 4023: <i>VSW MCM/Force Protection UUV</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
4023: <i>VSW MCM/Force Protection UUV</i>	4.797	12.485	20.455	-	20.455	16.971	12.169	15.242	15.564	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Provides for development of affordable expeditionary, unmanned underwater systems to support Explosive Ordnance (EOD). Mobile Diving and Salvage Units, and Very Shallow Water (VSW) and Underwater Mine Countermeasures (UMCM) mission operations. The equipment must be highly portable in order to support the Navy EOD technician to safely approach, render safe, recover, exploit and dispose of underwater explosive threats to include sea mines, limpet mines and unexploded ordnance. Provides support for the Navy's high priority missions of Maritime Homeland Defense, MCM, including clandestine reconnaissance and mine clearance in support of amphibious operations. Development of EOD UUV systems to support localization render-safe and detailed intelligence gathering of UXO including Underwater Improvised Explosive Devices. This project supports the Naval Mine Warfare Certification Plan.

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

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
<b>Title:</b> VSW MCM/Force Protection UUV	4.797	12.485	20.455	-	20.455
<b>Articles:</b>	0	0	0		0
<p><b>Description:</b> This program supports development, testing and Fleet approval for evolving generations of affordable, expeditionary Unmanned Underwater Vehicles (UUV), support equipment, and Common Operator Interface Navy (COIN) systems to address validated requirements in support of Explosive Ordnance Disposal and VSW UMCM mission areas. Mission areas include: open and confined areas, hulls, piers and pilings to search, classify, map, re-acquire, identify, and neutralize sea and limpet mines and underwater improvised explosive devices.</p> <p><b>FY 2011 Accomplishments:</b> Continued UUV-N User Operational Evaluation System (UOES) testing and re-validate UUV-N AOA requirements document. Inserted mature technologies and validate systems retrofit upgrades to VSW MCM and BULS UUVs CIP to enhance performance in harsh environments in accordance with ONR technology transition agreements (TTAs). Continued UOES testing and validation of Hull Search Underwater Localization System (HULS) to support requirements re-validation and limited production decision for a preliminary operational capability.</p> <p><b>FY 2012 Plans:</b></p>					

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 4023: <i>VSW MCM/Force Protection UUV</i>
---	---	---

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

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Leverage prior UOES testing and ONR Science and Technology (S&T) investments in standoff neutralization capabilities to initiate 1st increment of UUV-Neutralization (UUV-N) program to develop standoff neutralization capabilities to counter naval mines and other underwater explosive threats. Insert mature technologies and validate system retrofit to UMCM UUV systems as incremental capability improvement packages to enhance performance in harsh environments in accordance with CNO/ONR technology transition agreements. Complete HULS validation testing to support fielding of baseline system. Begin development of technology in support of capability upgrades to UUV systems insertion retrofit to HULS and UUV-N systems as the next increment capability improvement package to enhance performance in complex areas of ship hulls, piers and pilings and other certified areas. Continue to develop Common Operator Interface Navy (COIN).					
<b><i>FY 2013 Base Plans:</i></b> Continue to enhance both the HULS and UMCM UUV's with pre-planned product improvements to meet approved OPNAV operational requirements. UOES and RDT&E will be used to validate operational capabilities.					
<b>Accomplishments/Planned Programs Subtotals</b>	4.797	12.485	20.455	-	20.455

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/0977: <i>Underwater EOD Program (Cost Code UQ034)</i>	1.000	6.271	17.874	0.000	17.874	13.640	12.078	23.786	25.231	0.000	107.230

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new sub-projects. The AOA addresses and emphasizes acquisitions strategies of the most cost-effective solution over the sub-projects' life -cycle. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modifications), non-developmental item (including modifications), and lastly, developmental programs. Contracting for RDT&E, if required is always competitive and when feasible, production options are included.

This ongoing program capitalizes on a User Operational Evaluation System (UOES) effort involving Fleet operators engaged in tactical experimentation with prototype UUVs prior to fielding baseline systems and capability improvement package increments. These UUV operators also participate in detailed requirements analyses and definition. Operational capabilities with UUV have been realized at designated operational units, with a competitive acquisition strategy. The addition of enhanced capabilities through an evolutionary acquisition approach to the UUV toolbox is programmed for delivery in accordance with approved CNO requirements and ONR TTAs. Further improvements to the toolbox to add basic mine and underwater explosive threats neutralization capabilities will be pursued.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 4023: <i>VSW MCM/Force Protection UUV</i>

**E. Performance Metrics**

Research and Develop technologies for the design of Unmanned Underwater Systems to provide enhanced fleet capabilities to locate, classify, and neutralized mines and unexploded ordnance.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 4023: <i>VSW MCM/Force Protection UUV</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development	WR	Multiple Activities:Not Specified	-	5.700	Oct 2011	5.159	Oct 2012	-		5.159	0.000	10.859	
Systems Engineering	WR	NSWC, Activities:Not Specified	-	2.153	Oct 2011	4.858	Oct 2012	-		4.858	0.000	7.011	
Primary Hardware Development	WR	EODTECHDIV:IH, MD	16.238	-		-		-		-	Continuing	Continuing	Continuing
Systems Engineering	WR	EODTECHDIV:IH, MD	11.026	0.236	Oct 2011	3.500	Oct 2012	-		3.500	Continuing	Continuing	Continuing
<b>Subtotal</b>			27.264	8.089		13.517		-		13.517			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Technical Support	C/CPFF	ITT:ARLINGTON, VA	3.641	0.432	Oct 2011	0.450	Oct 2012	-		0.450	Continuing	Continuing	Continuing
<b>Subtotal</b>			3.641	0.432		0.450		-		0.450			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	Multiple Activities:Not Specified	-	2.546	Oct 2011	3.700	Oct 2012	-		3.700	0.000	6.246	
Operational Test & Evaluation	WR	NSWC, Activities:Not Specified	-	0.200	Oct 2011	0.900	Oct 2012	-		0.900	0.000	1.100	
Developmental Test & Evaluation	WR	EODTECHDIV:IH, MD	6.646	0.200	Oct 2011	0.800	Oct 2012	-		0.800	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	EODTECHDIV:IH, MD	1.424	-	Oct 2011	-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			8.070	2.946		5.400		-		5.400			







**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 4023: <i>VSW MCM/Force Protection UUV</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 4023</b>				
3RD GENERATION (NEUTRALIZATION)	1	2011	3	2017
Revalidate AOA	4	2011	4	2011
Requirements Validation	1	2011	2	2012
Development	3	2012	1	2016
Testing Final 1	1	2016	3	2017
Production Decision (Limited) 1	3	2017	3	2017
Title: 4th GENERATION (SEARCH-CLASSIFY & ID)	1	2012	3	2017
Test & Evaluation	1	2012	4	2016
Production/Retrofit Decision1	2	2012	2	2012
Production/Retrofit Decision2	2	2013	2	2013
Production/Retrofit Decision3	2	2014	2	2014
Production/Retrofit Decision4	2	2015	2	2015
Production/Retrofit Decision5	2	2016	2	2016
Production Decision	3	2017	3	2017
Title: HULS	1	2011	4	2017
UOES Operational Eval System	1	2011	4	2017
Revalidate Requirements	4	2011	2	2012
Testing Final	4	2011	2	2013
Production Decision (Limited)	2	2012	2	2012
Preliminary Engineering Change Proposal (PECP) - A	2	2012	2	2014
ECP Approval/Fleet Retrofits - A	3	2014	4	2015

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603654N: <i>JT Service Explosive Ordn Dev</i>	<b>PROJECT</b> 4023: <i>VSW MCM/Force Protection UUV</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Preliminary Engineering Change Proposal (PECP) - B	4	2014	4	2016
ECP Approval/Fleet Retrofits - B	1	2017	4	2017
INCREMENTAL CIP	1	2011	4	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>								
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0603658N: <i>Cooperative Engagement</i>								
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	57.198	54.783	56.512	-	56.512	71.776	64.469	86.867	77.385	Continuing	Continuing
2039: <i>COOP Engagement</i>	57.198	54.783	56.512	-	56.512	71.776	64.469	86.867	77.385	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and interface with Combat Systems and sensors. The DDS encodes and distributes own-ship sensor and engagement data and is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor that processes force levels of data in near real-time. The data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them. CEC incorporates Advanced Capability Build-12 (ACB-12) into the CEC baseline for FY09 - FY13.

The Navy implemented a Signal Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, and comms independence. The SDP will provide hardware which complies with Category 3 Open Architecture Computing Environment (OACE) standards with rehosted existing software, which will be fielded fleet-wide to allow affordable replacement of obsolete computing system components and eliminate dependencies on "closed" equipment, operating systems, and middleware.

Additionally, CEC is working with the Army to engineer a Joint Track Management (JTM) and sensor measurement fusion capability, which will be implemented in their respective programs to achieve interoperability across the battle space.

COMOPTEVFOR found the AN/USG-3 (E-2C Airborne CEC) Operationally Effective, but not Operationally Suitable. Reliability and availability issues are addressed by the replacement of four Weapons replaceable Assemblies (WRAs) with the new SDP. Backfit of the SDP in the E-2C will resolve suitability issues and satisfy National Security Agency (NSA) directed Crypto Modernization requirements with funding provided in FY10 and FY11. The SDP will also be used in E-2D.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>
---	--

A family of antennas approach will be used to satisfy CEC requirements with lower life cycle costs (procurement, installation, and maintenance) and reduced weight (on mast and below deck). These antennas enable future capability as well as providing a solution extensible to additional platforms. This effort for Common Array Block (CAB) antennas will be competed and awarded to a single Design Agent in FY12 and a competitive award for production is planned for FY14.

Large Nets respond to emergent needs of operational forces and missions, provides an extensible foundation for capability growth, provides interoperability with legacy units in Global Mode. This will provide an increase in DDS network size. This is needed to improve multiple battle group operations. Applicable ships and systems include all CEC deployed units and future fielding to include CG/DDG Modernization, and its Pathfinder Programs. Data Distribution System (DDS) must increase nodes to support the increasing number of fielded CEC assets.

In support of Interoperability, CEC will continue to work collaboratively with other Combat Systems programs (AWS, E-2C, E-2D, SSDS, CDLMS, C2P, and SGS/AC) to develop the software and implement design corrections and system changes. CEC will analyze the interactions of interoperability issues and impacts and provide collaboration for development of CEC and other system changes. Develop the long term solutions, including the engineering process to validate small parts of developmental software ideas, and utilize M&S to validate design approaches in the systems engineering realm.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	52.282	54.783	44.360	-	44.360
Current President's Budget	57.198	54.783	56.512	-	56.512
Total Adjustments	4.916	-	12.152	-	12.152
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	6.410	-			
• SBIR/STTR Transfer	-1.228	-			
• Program Adjustments	-	-	12.348	-	12.348
• Rate/Misc Adjustments	-	-	-0.196	-	-0.196
• Congressional General Reductions Adjustments	-0.266	-	-	-	-

**Change Summary Explanation**

Technical: Not Applicable.  
Schedule: Not Applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2039: <i>COOP Engagement</i>	57.198	54.783	56.512	-	56.512	71.776	64.469	86.867	77.385	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture capable of fire control quality. CEC distributes sensor data from each ship and aircraft, or cooperating unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system. CEC significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and interface with Combat Systems and sensors. The DDS encodes and distributes own-ship sensor and engagement data and is a high capacity, jam resistant, directive system providing a precision gridlocking and high throughput of data. The CEP is a high capacity distributed processor that processes force levels of data in near real-time. The data is passed to the ship's combat system as high quality data for which the ship can cue its onboard sensors or use the data to engage targets without actually tracking them. CEC incorporates Advanced Capability Build-12 (ACB-12) into the CEC baseline for FY09 - FY13.

The Navy implemented a Signal Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, and comms independence. The SDP will provide hardware which complies with Category 3 Open Architecture Computing Environment (OACE) standards with rehosted existing software, which will be fielded fleet-wide to allow affordable replacement of obsolete computing system components and eliminate dependencies on "closed" equipment, operating systems, and middleware.

Additionally, CEC is working with the Army to engineer a Joint Track Management (JTM) and sensor measurement fusion capability, which will be implemented in their respective programs to achieve interoperability across the battle space.

COMOPTEVFOR found the AN/USG-3 (E-2C Airborne CEC) Operationally Effective, but not Operationally Suitable. Reliability and availability issues are addressed by the replacement of four Weapons replaceable Assemblies (WRAs) with the new SDP. Backfit of the SDP in the E-2C will resolve suitability issues and satisfy National Security Agency (NSA) directed Crypto Modernization requirements with funding provided in FY10 and FY11. The SDP will also be used in E-2D.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

A family of antennas approach will be used to satisfy CEC requirements with lower life cycle costs (procurement, installation, and maintenance) and reduced weight (on mast and below deck). These antennas enable future capability as well as providing a solution extensible to additional platforms. This effort for Common Array Block (CAB) antennas will be competed and awarded to a single Design Agent in FY12 and a competitive award for production is planned for FY14.

Large Nets respond to emergent needs of operational forces and missions, provides an extensible foundation for capability growth, provides interoperability with legacy units in Global Mode. This will provide an increase in DDS network size. This is needed to improve multiple battle group operations. Applicable ships and systems include all CEC deployed units and future fielding to include CG/DDG Modernization, and its Pathfinder Programs. Data Distribution System (DDS) must increase nodes to support the increasing number of fielded CEC assets.

In support of Interoperability, CEC will continue to work collaboratively with other Combat Systems programs (AWS, E-2C, E-2D, SSDS, CDLMS, C2P, and SGS/AC) to develop the software and implement design corrections and system changes. CEC will analyze the interactions of interoperability issues and impacts and provide collaboration for development of CEC and other system changes. Develop the long term solutions, including the engineering process to validate small parts of developmental software ideas, and utilize M&S to validate design approaches in the systems engineering realm.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Title:</b> E-2D</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Completed E-2D and AN/USG-3B laboratory and aircraft engineering ground and flight testing. Analyzed related data, and developed and implemented trouble report corrective actions. Prepared for entry into E-2D AN/USG-3B initial operational testing. Supported installation and check out of AN/USG-3B system components into test aircraft supporting NIFC-CA, and prepared for NIFC-CA demonstration events. Continued CEC E-2D software flight testing, leading to early FY12 Operational Evaluation (OPEVAL).</p> <p><b>FY 2012 Plans:</b> Commence preparation for the E-2D and AN/USG-3B initial operational test and provide technical support to that event. Support NIFC-CA integration and demonstration preparation events. Provide analysis, debug and fixes.</p> <p><b>FY 2013 Plans:</b> Support NIFC-CA execution events with analysis, debug and fixes.</p>	3.900	2.240	1.000
	0	0	0
<p><b>Title:</b> B/L 2.1 INTEGRATION AND FOT&amp;E TESTING</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b></p>	13.300	6.800	6.700
	0	0	0



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continued development, integration and testing of computer program Baseline 2.1 for AEGIS and SSDS platforms in support of ACB-12. Performed Engineering and Developmental Testing (DT) of AN/USG-3B on E-2D. Performed Engineering Testing of AN/USG-2B for DDG-51 and CG-47 class. Supported developmental testing of near-term interoperability engineering upgrade. <b>FY 2012 Plans:</b> Continue development, integration and testing of computer program Baseline 2.1 for AEGIS and SSDS platforms. Perform Operational Testing (OT) of AN/USG-3B on E-2D, Engineering and Developmental testing of AN/USG-2B with AEGIS ACB12 Engineering and Developmental testing of CEC as part of NIFC-CA. Perform Operational Testing (OT) of AN/USG-2A on DDG-51 class. Support developmental testing of Mid-term interoperability enterprise upgrade. <b>FY 2013 Plans:</b> Support demonstration and OT testing of NIFC-CA. Perform Operational Testing (OT) of AN/USG-2B with AEGIS ACB12. Support operational testing of Mid-term interoperability enterprise upgrade.				
<b>Title:</b> NIFC-CA  <b>FY 2011 Accomplishments:</b> Supported NIFC-CA From-The-Sea (FTS) System-of-Systems (SoS) Systems Engineering (SE) leading to tests beginning in FY11. <b>FY 2012 Plans:</b> Support NIFC-CA FTS SoS SE. Provide CEC test support, model updates, post test analysis, debug and fix. Establish CEC capability at White Sands Missile Range Desert Ship in support of NIFC-CA. <b>FY 2013 Plans:</b> Support NIFC-CA FTS SoS SE leading to FY13 live fire testing at WSMR and At Sea. Provide CEC test support, model updates, post test analysis, debug and fix leading to deployable CEC baseline with NIFC-CA capability.		2.080 <b>Articles:</b> 0	3.390 0	2.730 0
<b>Title:</b> SYSTEM IMPROVEMENTS  <b>FY 2011 Accomplishments:</b> Continue CEC system improvements including enhanced communications, expansion of networking capability, development of system protection. Cryptologic Modernization, design agent and engineering services. Initiated Reduced Total Ownership Cost (RTOC) effort to design new USN antennas. <b>FY 2012 Plans:</b>		23.108 <b>Articles:</b> 0	19.143 0	17.638 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continue CEC system improvements including enhanced communications, expansion of networking capability, development of system protection. Cryptologic Modernization, design agent and engineering services. <b>FY 2013 Plans:</b> Continue CEC system improvements with large network development and integration with Advanced Missile Defense Radar (AMDR).				
<b>Title:</b> NETWORK ENABLED ELECTRONIC DEFENSE SYSTEM (NEEDS) <b>Articles:</b>		-	-	6.160 0
<b>FY 2013 Plans:</b> Continue research and development for NEEDS capability to respond to emergent needs of operational forces and will provide improved surveillance, tracking, ID, and engagement capabilities.				
<b>Title:</b> FIELD ACTIVITIES <b>Articles:</b>		8.400 0	8.200 0	8.294 0
<b>FY 2011 Accomplishments:</b> Continue field activity support of CEC development efforts (i.e. SE/IA, Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support. <b>FY 2012 Plans:</b> Continue field activity support of CEC development and fielding efforts (i.e. SE/IA, Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support. <b>FY 2013 Plans:</b> Continue field activity support of CEC development and fielding efforts (i.e. SE/IA, Technical Direction Agent, In-Service Engineering, Integrated Logistics Support Planning) and program management support.				
<b>Title:</b> LINK 16/INTEROPERABILITY <b>Articles:</b>		6.410 0	2.210 0	3.390 0
<b>FY 2011 Accomplishments:</b> Developed Accelerated Mid-Term Interoperability Improvement Program (AMIIP) design changes for CEC and Common Data Link Management System (CDLMS)/Link 16. Reviewed CEC and CDLMS design changes with Aegis, SSDS, SGS/AC, and E-2C programs.				

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Reviewed CEC and CDLMS documented system trouble reports to identify and prioritize critical interoperability trouble reports for correction. Commenced a coordinated review between all 6 programs and Fleet representatives to review the entire Trouble Report package for completeness.			
Commenced Software code development. Executed Engineering Assessment #1 (EA#1) with Aegis, CEC, and CDLMS/Link 16 with initial versions of modified software at the Combat Systems Engineering Development Site (CSEDS) in Moorestown, NJ.			
<b>FY 2012 Plans:</b> Collaborate Link 16/interoperability efforts with other Combat Systems programs (AWS, E-2C, E-2D, SSDS, CDLMS, C2P, and SGS/AC). Develop and analyze impacts of software and implement foundational changes, design corrections, and other system changes. Participate in testing of the resulting Mid-term interoperability changes aboard USN fleet during Trident Warrior 12.			
<b>FY 2013 Plans:</b> Test, debug, certify and field the Mid-term interoperability upgrade.			
<b>Title:</b> COMMON ARRAY BLOCK (CAB) ANTENNA	-	12.800	10.600
<b>Articles:</b>		0	0
<b>FY 2012 Plans:</b> Continue development of the CAB-S antenna.			
<b>FY 2013 Plans:</b> Continue development of the CAB-S antenna.			
<b>Accomplishments/Planned Programs Subtotals</b>	57.198	54.783	56.512

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• SCN: <i>Navy, SCN</i>	17.006	16.367	28.994	0.000	28.994	10.058	18.774	12.500	16.900	Continuing	Continuing
• APN/0204152N: <i>Navy, APN</i>	16.277	20.657	21.010	0.000	21.010	21.382	30.474	26.591	31.581	Continuing	Continuing
• OPN/2606: <i>CEC</i>	25.551	19.332	27.881	0.000	27.881	34.932	38.133	29.421	34.710	Continuing	Continuing
• OPN/0960: <i>CG Mod</i>	16.455	15.284	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/0900: <i>DDG Mod</i>	16.388	0.000	11.191	0.000	11.191	5.587	15.757	11.154	11.777	Continuing	Continuing
• OPN/0206313M: <i>USMC</i>	11.305	2.200	0.000	0.000	0.000	6.579	0.000	0.000	0.000	Continuing	Continuing
• RDT&E/0206313M: <i>USMC</i>	1.249	2.513	0.486	0.000	0.486	0.100	0.000	0.000	0.000	Continuing	Continuing
• RDT&E,N/: <i>NAVAIR</i>	1.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDT&E,A/0102419A: <i>JLENS</i>	5.037	2.725	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

**D. Acquisition Strategy**

CEC Acquisition Strategy (AS) was approved by OSD (AT&L) on 19 January 2010. CEC Acquisition Plan was updated April 2010 to incorporate competition into the CEC program. The CEC Acquisition Plan (AP) was revised June 2011 to incorporate the Common Array Block (CAB) antenna effort.

Contracts:

- SDP-S Contract Awarded - Q1 FY12.
- Design Agent/Engineering Services - FY11-FY12. New Contract will be competitively awarded in FY13.
- Common Array Block (CAB) antenna - New Contract will be competitively awarded in FY12.
- CEC Systems (less SDP) production - New Contract will be competitively awarded in FY13.

**E. Performance Metrics**

- Achieved NSA Type 1 Certification.
- Complete the adaptive layer development for the E-2D aircraft. Provide technical support for installation and integration in the Northrop Grumman Systems Integration Laboratory, on board the test aircraft and support the Developmental testing.
- Continue AEGIS Advance Capability Builds CEC integration and demonstration efforts.
- Continue Naval Integrated Fire Control - Counter Air (NIFC-CA) CEC integration and demonstration efforts.
- Continue E-2D Advanced Hawkeye aircraft CEC integration efforts.
- Continue Crypto Modernization Tech Refresh efforts.
- Award contract to develop Common Array Block (CAB).

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
AN/USG-2/3 Development/P3I	C/CPFF	Raytheon:St. Petersburg, FL	75.759	7.970	Feb 2012	8.000	Dec 2012	-		8.000	Continuing	Continuing	Continuing
AN/USG-2/3 Development/TDA	C/CPFF	JHU/APL:Laurel, MD	40.446	8.102	Feb 2012	8.551	Nov 2012	-		8.551	Continuing	Continuing	Continuing
SI/DA	C/CPAF	General Dynamics:Fairfax, VA	23.979	-		-		-		-	0.000	23.979	
SI/DA	C/CPAF	Award Fees:Not Specified	2.903	-		-		-		-	0.000	2.903	
DDG 1000	C/CPAF	Raytheon:Massachusetts	10.983	-		-		-		-	0.000	10.983	
DDG 1000	C/CPAF	Award Fees:Not Specified	0.447	-		-		-		-	0.000	0.447	
NIFC-CA Integration	TBD	Various:Not Specified	33.639	2.390	Dec 2011	2.730	Dec 2012	-		2.730	Continuing	Continuing	Continuing
In-Service Engineering Activity	WR	NSWC:Port Hueneme, CA	0.857	0.250	Nov 2011	0.250	Nov 2012	-		0.250	Continuing	Continuing	Continuing
Software Support Activity/SEIA	WR	NSWC:Dahlgren, VA	11.338	0.449	Nov 2011	0.449	Nov 2012	-		0.449	Continuing	Continuing	Continuing
Production Engineering Activity	WR	NSWC:Crane, IN	5.094	0.600	Nov 2011	0.600	Nov 2012	-		0.600	Continuing	Continuing	Continuing
JTRS	TBD	Various:Not Specified	8.500	-		-		-		-	0.000	8.500	
Various	TBD	Miscellaneous:Not Specified	15.832	12.322	Feb 2012	-		-		-	Continuing	Continuing	Continuing
NAVSSI	WR	SPAWAR:San Diego, CA	0.368	-		-		-		-	0.000	0.368	
Certification	MIPR	NSA:Fort Meade, MD	0.850	0.250	Feb 2012	0.250	Nov 2012	-		0.250	Continuing	Continuing	Continuing
Certification	WR	SPAWAR:Charleston, SC	0.930	-		-		-		-	Continuing	Continuing	Continuing
Joint Exercises	WR	Various:Not Specified	3.744	-		-		-		-	Continuing	Continuing	Continuing
LBTS Testing	WR	CDSA Damneck:Virginia Beach, VA	5.070	0.500	Nov 2011	0.500	Nov 2012	-		0.500	Continuing	Continuing	Continuing
LBTS Testing	Reqn	SCSC:Wallops Island, VA	3.930	0.700	Nov 2011	0.700	Nov 2012	-		0.700	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
E-2D Integration	TBD	Various:Not Specified	36.948	2.250	Nov 2011	1.000	Nov 2012	-		1.000	Continuing	Continuing	Continuing
MSI/NCCT	MIPR	Wright Patterson AFB:Dayton, OH	1.228	-		-		-		-	0.000	1.228	
Common Array Block Development	C/CPFF	TBD:Not Specified	-	11.200	Dec 2011	10.600	Dec 2012	-		10.600	0.000	21.800	
AN/USG-2B/3B Development	C/CPFF	TBD:Not Specified	-	-	Dec 2011	9.018	Dec 2012	-		9.018	0.000	9.018	
NEEDS	C/CPFF	TBD:Not Specified	-	-		6.160	Dec 2012	-		6.160	0.000	6.160	
<b>Subtotal</b>			282.845	46.983		48.808		-		48.808			

**Remarks**

- Explanations for the use of "WR, MP, and Reqn" in the Contract method & type" column are as follows:
- When using "MIPR", these documents are issued to DOD activities that are outside of the Department of the Navy.
  - When using "Reqn" for Wallops Island, this document is used because this is the only document we can provide to the activity to accomplish taskings for the CEC program.
  - When using "WR", these documents are sent to Navy activities who obligate funding on their vehicles to accomplish tasking for CEC. These activities are the only ones who can accomplish these tasks for the program.
  - E-2D Integration/NIFC-CA "Various/TBDs" are for classified programs and several document types.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Test/ACB Support	C/CPFF	Raytheon:St. Petersburg, FL	1.334	0.463	Nov 2011	-		-		-	Continuing	Continuing	Continuing
Test/ACB Support	C/CPFF	JHU/APL:Laurel, MD	0.198	0.261	Nov 2011	-		-		-	Continuing	Continuing	Continuing
Test Support	WR	NRL:Washington, DC	0.313	-		-		-		-	0.000	0.313	
Test/ACB Support	WR	NSWC:Port Hueneme, CA	15.608	1.436	Nov 2011	1.836	Nov 2012	-		1.836	Continuing	Continuing	Continuing
Air Operations Test Support	WR	NAVAIR (PMA207):Patuxent River, MD	6.461	1.700	Nov 2011	0.800	Nov 2012	-		0.800	Continuing	Continuing	Continuing
Test Data Reduction Analysis	WR	NWAS:Corona, CA	10.821	0.300	Nov 2011	0.900	Nov 2012	-		0.900	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Support	WR	COMOPTEVFOR:Norfolk, VA	6.277	2.500	Nov 2011	0.300	Nov 2012	-		0.300	Continuing	Continuing	Continuing
Test/ACB Support	WR	NSWC:Dahlgren, VA	1.000	0.140	Nov 2011	0.144	Nov 2012	-		0.144	0.000	1.284	
Test/ACB Support	C/CPFF	TBD:Not Specified	-	-		2.724	Dec 2012	-		2.724	0.000	2.724	
<b>Subtotal</b>			42.012	6.800		6.704		-		6.704			

**Remarks**  
 Explanation for the use of "WR" in the "Contract method & type" column are as follows:  
 When using "WR", these documents are sent to Navy activities who obligate funding on their vehicles to accomplish tasking for CEC. These activities are the only ones who can accomplish these tasks for the program.  
 Test support also includes ACB the following funding:  
 FY12 - \$1.0M  
 FY13 - \$3.0M

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FFP	Booz Allen & Hamilton:Washington, DC	4.190	0.880	Dec 2011	0.880	Dec 2012	-		0.880	Continuing	Continuing	Continuing
Program Management Support	C/FFP	Tech Marine Business:Washington, DC	0.240	0.120	Dec 2011	0.120	Dec 2012	-		0.120	Continuing	Continuing	Continuing
<b>Subtotal</b>			4.430	1.000		1.000		-		1.000			

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		329.287	54.783	56.512	-	56.512		

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

KEY EVENTS	FY11				FY12				FY13				FY14				FY15				FY16				FY17			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Acquisition Milestones</b>	◆ Gate 6/CSB 1				◆ Gate 6/CSB 2				◆ Gate 6/CSB 3				◆ Gate 6/CSB 4				◆ Gate 6/CSB 5				◆ Gate 6/CSB 6				◆ Gate 6/CSB 7			
<b>Program Milestones</b>	◆ Crypto Mod Cert				◆ JTMC Demo				◆ ILA				◆ ILA															
<b>Contracts</b>	▼ Last Option Awarded																											
CEC Production																												
CEC Competitive Production									△ Contract Award																			
CEC GFE Repair Competitive									△ Contract Award																			
CEC SDP Comp Production					▲ Contract Award																▼							
DA/ES Competitive									△ Contract Award																			
CAB									△ Contract Award								◆ CAB First Production Unit Testing											
<b>Test &amp; Evaluation</b>	▲ AN/USG-3 DT-IIIID				▲ AN/USG-3B OT-IIIIF				▲ AN/USG-2B DT-IIIIE				▲ AN/USG-2B OT-IIIIG				▲ AN/USG-3B DT-IIIIF				▲ AN/USG-3B OT-IIIIH							
					▲ AN/USG-2 OT-IIIIE				▲ Trident Warrior																			

Acronym List
AN/USG-2, 2B: CEC shipboard designation
AN/USG-3, 3B: CEC airborne designation
AN/USG-xA: CEC with SDP-C Configuration
AN/USG-xB: CEC with SDP-S Configuration
CAB: Common Antenna Block
CEC: Cooperative Engagement Capability
CSB: Configuration Steering Board
DR: Decision Review
DA/ES: Design Agent/Engineering Services
DT/OT: Development Test/Operational Test
FRP: Full Rate Production
FQT: Final Qualification Test
GFE: Government Furnished Equipment
ILA: Independent Logistics Assessment
JTMC: Joint Track Manager Capability
LRIP: Low Rate Initial Production
TDP: Technical Data Package
TEMP: Test & Evaluation Master Plan
SDP-S: Signal Data Processor - Sierra Chip



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2039</b>				
AN/USG-3B CEC LRIP DAB	3	2012	3	2012
CRYPTO MOD CERT	2	2011	2	2011
1ST SDP-S PRODUCTION	2	2011	2	2011
ILA 1	4	2011	4	2011
AN/USG-3B CEC FRP DR	1	2014	1	2014
AN/USG-2 OT-III E	1	2012	1	2012
TEMP REV 5	2	2012	2	2012
AN/USG-3 DT-III D	2	2011	4	2011
JTMC DEMO	1	2012	1	2012
AN/USG-3B DT-III F	3	2015	4	2015
AN/USG-2B OT-III G	2	2014	3	2014
AN/USG-3B OT-III F	2	2012	3	2012
CEC COMPETITIVE PRODUCTION	2	2013	4	2017
CEC SDP COMP PRODUCTION	1	2012	1	2017
CEC GFE REPAIR COMPETITIVE	2	2013	4	2017
CEC DA/ES COMPETITIVE	1	2013	4	2017
AN/USG-2B DT-III E	3	2012	4	2013
AN/USG-3B OT-III H	2	2016	4	2016
ILA 2	2	2013	2	2013
GATE 6 CSB 1	1	2011	1	2011
GATE 6 CSB 2	1	2012	1	2012

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603658N: <i>Cooperative Engagement</i>	<b>PROJECT</b> 2039: <i>COOP Engagement</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
GATE 6 CSB 3	1	2013	1	2013
GATE 6 CSB 4	1	2014	1	2014
GATE 6 CSB 5	1	2015	1	2015
GATE 6 CSB 6	1	2016	1	2016
GATE 6 CSB 7	1	2017	1	2017
AN/USG-2B FQT	1	2012	1	2012
CEC PRODUCTION LAST OPTION AWARDED	1	2011	1	2011
CEC CAB	4	2012	4	2015
PEO IWS SUFFICIENCY REVIEW	3	2011	3	2011
TRIDENT WARRIOR	4	2012	4	2012
CAB FIRST PRODUCTION UNIT TESTING	1	2015	1	2015

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	12.715	9.996	7.029	-	7.029	7.198	7.367	7.502	7.633	Continuing	Continuing
0099: <i>Deep Submergence Bio Med Dev</i>	3.121	3.507	3.538	-	3.538	3.619	3.696	3.760	3.824	Continuing	Continuing
0394: <i>Shallow Depth Diving EQ</i>	9.594	6.489	3.491	-	3.491	3.579	3.671	3.742	3.809	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Developments in this program will enable the U.S. Navy to overcome deficiencies that constrain underwater operations in the areas of search, location, rescue, recovery, salvage, construction, and protection of offshore assets. This program develops medical technology, diver life support equipment, and the vehicles, systems, tools, and procedures to permit manned underwater operations.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	13.560	9.996	7.236	-	7.236
Current President's Budget	12.715	9.996	7.029	-	7.029
Total Adjustments	-0.845	-	-0.207	-	-0.207
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-0.776	-	-	-	-
• Program Adjustments	-	-	-0.207	-	-0.207
• Rate/Misc Adjustments	-	-	-	-	-
• Congressional General Reductions Adjustments	-0.069	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0099: <i>Deep Submergence Bio Med Dev</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0099: <i>Deep Submergence Bio Med Dev</i>	3.121	3.507	3.538	-	3.538	3.619	3.696	3.760	3.824	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:

- 1) Develops advanced biomedical and bioengineering technology for enhancing medical and life support for submarine escape and rescue;
- 2) Conducts research for diver health, safety and effectiveness; and
- 3) Supports deeper, longer, and more flexible dives.

Deliverables for DISSUB (disabled submarine) include: medical procedures for submarine escape and rescue (including new Submarine Rescue Diving and Recompression System (SRDRS)), life support parameters, medical procedures for life support, exposure guidance for atmospheric contaminants, non-chemical CO2 scrubbing, prevention and treatment of decompression illness, and senior survivor expert decision system.

Deliverables for diver enhancement include: exposure guidance for diver underwater continuous noise, impulse noise, and underwater blast, exposure guidance for oxygen breathing, collection of operational diving depth/time profiles to predict decompression risk, enhanced underwater swimming efficiency, enhanced diver thermal protection, and real-time decompression guidance.

Requirements: NAPDD #587-873, Deep Submergence Biomedical Development, 23 November 1999.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Deep Submergence Bio Med Dev - Diver Health and Safety	1.561	1.754	1.769
<b>Articles:</b>	0	0	0
<b>Description:</b> Diver Health and Safety Research: Pulmonary oxygen toxicity exposure limits. Procedures for assessing and mitigating risk for diving in contaminated water. Procedure to determine remaining CO2 scrubber duration. Development of advanced insulation garments for diver thermal protection. Develop guidance for optimizing thermal control during decompression. Continue collection of operational dive profiles for advanced modeling. Novel methods for diver thermal protection. Improve resistance to O2 toxicity. Diver anthropometry. Chemical hardening of diving equipment. Predictive index of visual and auditory O2 toxicity. Guidelines for flying after diving. Guidelines for infra- and ultra-sound diver exposure. Develop an advanced diver thermal model. Electronic collection of operational dive data. Diver sound monitor. Investigation of diver in-water maladies, develop/improve real-time decompression guidance and dive planning.			
<b>FY 2011 Accomplishments:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>		<b>PROJECT</b> 0099: <i>Deep Submergence Bio Med Dev</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>					
Continue pulmonary oxygen toxicity exposure limits. Data collection of long-term health effects of Navy dives completed, now undergoing analyses. Continue the investigations into Immersion Pulmonary edema, Continue the effects of exercise, thermal environment, negative breathing on Nitrogen uptake and elimination. Continue dive data collection effort. Continue Topside Decompression Monitor. Continue investigations into probabilistic decompression models and dive planning.					
<b>FY 2012 Plans:</b> Continue human performance and pulmonary oxygen toxicity investigation and guidance for repeated long duration dives. Continue enhanced thermal protection efforts for divers. Continue probabilistic and deterministic models decompression algorithm investigation. Continue real-time decompression guidance and planning efforts.					
<b>FY 2013 Plans:</b> Continue evaluation of susceptibility to immersion pulmonary edema. Other projects to be approved in late FY2011 and FY2012.					
<b>Title:</b> Deep Submergence Bio Med Dev - Submarine Rescue					
<b>Description:</b> Submarine Rescue: Decompression procedures for pressurized SRDRS operators. Use of perfluorocarbons to accelerate decompression in submarine rescue. Adjunctive therapies for treating DISSUB survivors. Guidance for food, water, clothing, medical supplies to enhance survival of submarine crews awaiting rescue. Flexible computer generated decompression schedules for wide range of conditions in a DISSUB. Develop DISSUB triage procedures. DISSUB survival trial. Develop oxygen metabolizer for closed vehicles. Treatment guidance for decompression sickness and arterial gas embolism in submarine escape and rescue. Interventions for toxicological problems with rescued submariners. Minimizing decompression sickness and arterial gas embolism with Submarine Escape and Immersion Suit (SEIS) training. Use of pharmacologic agents to reduce decompression risk in submarine rescues. Development of toxic gas analyzer for use in pressurized DISSUB.					
<b>FY 2011 Accomplishments:</b> Begin full-scale testing of the oxygen delivery system for pressurized DISSUB submariner decompression. Determine ascent rate of small stature personnel using submarine Escape Immersion Equipment (SEIE). Improving prediction for DISSUB Rescue using 70 kg swine dropout decompression from 50-30 fsw. Begin compilation of previously existing sheep and swine data for pressurized DISSUB decompression guidance. Continue development and evaluation of toxic gas analyzer for use in pressurized DISSUB. Begin negative pressure breathing to enhance nitrogen elimination during pressurized DISSUB rescue.					
<b>FY 2012 Plans:</b>					
		<b>Articles:</b>	1.560	1.753	1.769
			0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>		<b>PROJECT</b> 0099: <i>Deep Submergence Bio Med Dev</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
Continue prediction improvement for DISSUB Rescue using 70 kg swine dropout decompression from 50-30 fsw. Continue decompression enhancement using combined animal models for depths too risky for human subject testing. Continue negative pressure breathing to enhance nitrogen elimination during pressurized DISSUB rescue.				
<b>FY 2013 Plans:</b> To be determined based on projects selected in late FY 2011 and FY 2012.				
<b>Accomplishments/Planned Programs Subtotals</b>				
				3.121
				3.507
				3.538
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>D. Acquisition Strategy</b>				
Integrated thrust area teams (e.g., decompression research) are established with university, commercial, and in-house Navy labs to jointly execute biomedical R&D. Peer review of research proposals accomplished by independent Technical Advisory Board. Annual review of progress by Executive Review Board (CNO/NAVSEA/ONR/BUMED). Program management by 0-6 Undersea Medical Officer. Contracting by competitive process using BAA and leveraging ONR capabilities.				
<b>E. Performance Metrics</b>				
Quarterly Program Reviews				

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: Research, Development, Test & Evaluation, Navy BA 4: Advanced Component Development & Prototypes (ACD&P)	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: Ocean Engineering Tech Dev	<b>PROJECT</b> 0099: Deep Submergence Bio Med Dev
---	---	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NEDU:Panama City, FL	13.833	2.020	Oct 2011	2.040	Oct 2012	-		2.040	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	NMRC:Silver Spring, MD	4.644	1.347	Oct 2011	1.358	Oct 2012	-		1.358	Continuing	Continuing	Continuing
<b>Subtotal</b>			18.477	3.367		3.398		-		3.398			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various:Various	0.086	0.070	Oct 2011	0.070	Oct 2012	-		0.070	Continuing	Continuing	Continuing
Travel	Various	Various:Various	0.183	0.070	Oct 2011	0.070	Oct 2012	-		0.070	Continuing	Continuing	Continuing
*SBIR Assessment	Various	Various:Various	0.182	-		-		-		-	Continuing	Continuing	Continuing
Acquisition Workforce	Various	Various:Various	0.016	-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			0.467	0.140		0.140		-		0.140			

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			18.944	3.507		3.538		-		3.538			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2013 Navy</b>	<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>
<b>PROJECT</b> 0099: <i>Deep Submergence Bio Med Dev</i>	

CLASSIFICATION: UNCLASSIFIED		EXHIBIT R-4, SCHEDULE PROFILE																Date: JANUARY 2012															
APPROPRIATION/BUDGET ACTIVITY		PROGRAM ELEMENT NUMBER AND NAME																PROJECT NUMBER AND NAME															
RDTE, N / BA 4		0603713N / OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT																0099 / DEEP SUBMERGENCE BIO MED DEV															
		FY11				FY12				FY13				FY14				FY15				FY16				FY17							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
<b>FY11 DSBDP R&amp;D Execution</b>		██████████																															
FY12																																	
1) Broad Agency Announcement Published (DSBDP R&D Priorities); 2) Invitation for FY12 Pre-Proposals; and 3) Submission of FY12 Pre-Proposals		██████																															
1) Request for Full Proposals from Approved Pre-Proposals; and 2) Submission of FY12 Full Proposals		██████████																															
1) Full Proposal Review by DSBDP Technical Advisory Board (TAB); 2) TAB Meets to Prioritize DSBDP FY12 Proposals; 3) Brief Sponsor on TAB Prioritized DSBDP FY12 R&D Program; and 4) Forward Proposal Approval Letters, Navy Lab Guidance Letters		██████																															
<b>FY12 DSBDP R&amp;D Execution</b>						██████████																											
FY13																																	
1) Broad Agency Announcement Published (DSBDP R&D Priorities); 2) Invitation for FY13 Pre-Proposals; and 3) Submission of FY13 Pre-Proposals						██████																											
1) Request for Full Proposals from Approved Pre-Proposals; and 2) Submission of FY13 Full Proposals						██████████																											
1) Full Proposal Review by DSBDP Technical Advisory Board (TAB); 2) TAB Meets to Prioritize DSBDP FY13 Proposals; 3) Brief Sponsor on TAB Prioritized DSBDP FY13 R&D Program; and 4) Forward Proposal Approval Letters, Navy Lab Guidance Letters						██████																											
<b>FY13 DSBDP R&amp;D Execution</b>										██████████																							

CLASSIFICATION: UNCLASSIFIED  
EXHIBIT R-4, SCHEDULE PROFILE



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0099: <i>Deep Submergence Bio Med Dev</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0099</b>				
FY11 DSBDP R&D Execution	1	2011	4	2011
FY12 Broad Agency Announcement Published (DSBDP R&D Priorities)	3	2011	3	2011
Invitation for FY12 Pre-Proposals	3	2011	3	2011
Submission of FY12 Pre-Proposals	3	2011	3	2011
Request for Full Proposals from Approved FY12 Pre-Proposals	3	2011	4	2011
Submission of FY12 Full Proposals	3	2011	4	2011
Full FY12 Proposal Review by DSBDP Technical Advisory Board (TAB)	4	2011	4	2011
TAB Meets to Prioritize DSBDP FY12 Proposals	4	2011	4	2011
Brief Sponsor on TAB Prioritized DSBDP FY12 R&D Program	4	2011	4	2011
Forward FY12 Proposal Approval Letters, Navy Lab Guidance Letters	4	2011	4	2011
FY12 DSBDP R&D Execution	1	2012	4	2012
FY13 Broad Agency Announcement Published (DSBDP R&D Priorities)	3	2012	3	2012
Invitation for FY13 Pre-Proposals	3	2012	3	2012
Submission of FY13 Pre-Proposals	3	2012	3	2012
Request for Full Proposals from Approved FY13 Pre-Proposals	3	2012	4	2012
Submission of FY13 Full Proposals	3	2012	4	2012
Full FY13 Proposal Review by DSBDP Technical Advisory Board (TAB)	4	2012	4	2012
TAB Meets to Prioritize DSBDP FY13 Proposals	4	2012	4	2012
Brief Sponsor on TAB Prioritized DSBDP FY13 R&D Program	4	2012	4	2012
Forward FY13 Proposal Approval Letters, Navy Lab Guidance Letters	4	2012	4	2012
FY13 DSBDP R&D Execution	1	2013	4	2013

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0394: <i>Shallow Depth Diving EQ</i>	9.594	6.489	3.491	-	3.491	3.579	3.671	3.742	3.809	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 is to develop systems to support submarine escape, survivability, rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as, Navy needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. Efforts through FY15 focus on the Submarine Rescue Diving and Recompression System (SRDRS) to provide a new rapidly deployed emergency submarine rescue capability. SRDRS provides a new capability of pressurized transportation of rescuees from a stricken submarine directly to the decompression system replacing the Deep Submergence Rescue Vehicles and Mother Submarines. SRDRS includes an air transportable rapid Assessment/Underwater Work System (AUWS), a Pressurized Rescue Module (PRM) or Rescue Capable System (RCS), and a Submarine Decompression System (SDS). The AUWS is a manned system that provides intervention system capability. To reduce operational risk, an initiative is in process to transition from AUWS to an unmanned Remote Operated Vehicle (ROV). Intervention assets support clearing disabled submarine seating surfaces, delivery of emergency life support stores, and disabled submarine assessment. The Submarine Rescue System-Rescue Capable System (SRS-RCS) completed OPEVAL in FY08 and is rescue ready. The Submarine Rescue System-Submarine Decompression System (SRS-SDS) is scheduled for IOC in FY15. The SRDRS will provide a global rapid response capability to support submarine rescue missions with an increase in capability at a fraction of the cost of the currently available systems.

Shallow Depth Diving Equipment managed under SEA00C - This project develops systems to support submarine escape and rescue missions, and conventional diver operations. Diver operations include ship husbandry, salvage/recovery, and submarine rescue operations to support national, as well as Navy, needs around the world. Modern certifiable diving systems that ensure diver safety and allow maximum work efficiency will replace currently antiquated systems. R&D will be performed in the areas of contaminated water diving, diver thermal protection, and diver sound protection.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Shallow Depth Diving EQ - SRDRS	8.435	5.273	2.268
<b>Articles:</b>	0	0	0
<b>Description:</b> Continue design, fabrication, and acceptance testing of the prototype Submarine Decompression System and support equipment. Continue integration of all SRDRS components.			
<b>FY 2011 Accomplishments:</b> Continued design/development/fabrication of Submarine Decompression System Primary Elements including: Submarine Decompression Chamber 1 and 2 repairs and modifications; Pressurized Flexible Manways 1, 2, and 3; Deck Transfer Lock; and Mission and Auxiliary Support Equipment. Performed developmental testing for Deck Interconnects and Submarine			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>		<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Decompression Chambers 1 and 2, and Pressurized Flexible Manways 1 and 2. Plan to complete material audits for Deck Interconnects. <b>FY 2012 Plans:</b> Continue design/development/fabrication of Submarine Decompression System Primary Elements including: Submarine Decompression Chamber 1 and 2 repairs and modifications; Pressurized Flexible Manways 1, 2, and 3; Deck Transfer Lock; and Mission and Auxiliary Support Equipment. Plan to complete material audits for Submarine Decompression System Ship Interface Template Sets, Pressurized Flexible Manways 1,2, and 3, Deck Transfer Lock, Submarine Decompression Chambers 1 and 2, and Morgan Breathing System 2000. Plan to perform developmental testing for Modified Transfer Lock, Ship Interface Template Sets, Pressurized Flexible Manways 1, 2, and 3, Morgan Breathing System 2000, and the Deck Transfer Lock. <b>FY 2013 Plans:</b> Plan to complete system configuration audit for the Submarine Rescue System - Transfer Under Pressure. Plan to perform integration and sea-trials testing including shipment to Deep Submergence Unit, San Diego.				
<b>Title:</b> Shallow Depth Diving EQ - Diving <b>Description:</b> Continue research on contaminated water diving and research on diver thermal protection and CO2 monitors, and diver sound protection. <b>FY 2011 Accomplishments:</b> Continue research on contaminated water diving, CO2 monitors, and diver sound protection. Continue research on the prototype diver cooling system. Continue research on validation of air and oil monitors. <b>FY 2012 Plans:</b> Continue research on contaminated water diving, diver thermal protection, CO2 monitors, and diver sound protection. Continue the research on prototype diver cooling system. Continue research on validation of air and oil monitors. <b>FY 2013 Plans:</b> To be determined based on projects selected in late FY2011 and FY2012.		<b>Articles:</b> 1.159 0	1.216 0	1.223 0
<b>Accomplishments/Planned Programs Subtotals</b>		9.594	6.489	3.491
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>

**D. Acquisition Strategy**

The Submarine Rescue system (SRS) segment of the SRDRS is largely based on the use of Commercial-Off-the-Shelf (COTS) technology and maximum use of Non-Developmental Items (NDI). The SRS segment is being procured using performance based specifications. Many of the SRS contracts were awarded competitively and were based on technical capability and cost considerations (best value). Program management of SRDRS is accomplished through the use of Program Executive Officer, Submarines (PEO SUB) leadership. This change was enacted in February 2003 realigning the responsibility from SEA00C to PEOSUB. The Prototype system provides full operational capability and no additional procurement is planned. The system is designed to be Government Owned/Commercially Operated/Commercially Maintained (GO/CO/CM).

**E. Performance Metrics**

Quarterly Program Reviews and Critical Design Reviews.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Pressurized Rescue Module System (PRMS)	C/CPHF	Oceanworks:Ontario, Canada	23.824	-		-		-		-	0.000	23.824	
PRMS	C/FFP	Oceanworks:Ontario, Canada	4.150	-		-		-		-	0.000	4.150	
Systems Engineering - Design, Integration	C/CPAF	Oceaneering:Hanover, MD	21.155	0.424	Oct 2011	0.427	Oct 2012	-		0.427	Continuing	Continuing	Continuing
Systems Engineering - Technical	Various	Various:Various	0.537	-		-		-		-	Continuing	Continuing	Continuing
Systems Engineering - Design, Integration	C/CPAF	Oceaneering:Hanover, MD	1.986	2.014	Feb 2012	0.184	Jan 2013	-		0.184	0.000	4.184	
Systems Engineering - Design, Integration	C/CPAF	Oceaneering:Hanover, MD	2.145	1.289	Apr 2012	0.187	Apr 2013	-		0.187	0.000	3.621	
Systems Engineering - Design & Integration	C/CPAF	Oceaneering:Hanover, MD	0.635	0.309	Sep 2012	0.067	Sep 2013	-		0.067	0.000	1.011	
<b>Subtotal</b>			54.432	4.036		0.865		-		0.865			

**Remarks**  
1. Oceaneering is the prime for SRDRS Transfer Under Pressure (TUP) capability; scheduled for IOC in FY15.

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Development Support	Various	Various:Various	4.806	1.035	Oct 2011	1.158	Oct 2012	-		1.158	Continuing	Continuing	Continuing
Integrated Logistics Support	Various	Various:Various	0.841	-		-		-		-	Continuing	Continuing	Continuing
Configuration Management	C/CPAF	Oceaneering:Hanover, MD	0.489	-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.136	1.035		1.158		-		1.158			

**Remarks**  
Items citing various are contracts issued to multiple government activities. Competitions for these efforts are in process.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>
---	--	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	Various:Various	3.187	-		-		-		-	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	0.575	0.050	Oct 2011	0.080	Oct 2012	-		0.080	Continuing	Continuing	Continuing
<b>Subtotal</b>			3.762	0.050		0.080		-		0.080			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	QBS/Various:Richmond BC, Canada/Various	0.074	-		-		-		-	Continuing	Continuing	Continuing
Government Engineering Support	WR	NFESC:Port Hueneme, CA	0.197	-		-		-		-	Continuing	Continuing	Continuing
Government Engineering Support	WR	PSNSY/ Various:Bremerton, WA/Various	2.197	-		-		-		-	Continuing	Continuing	Continuing
Government Engineering Support	Various	Various:Various	1.859	-		-		-		-	Continuing	Continuing	Continuing
Program Management Support	Various	Perot:Washington, DC	2.110	-		-		-		-	Continuing	Continuing	Continuing
Travel	Various	NAVSEA:Washington, DC	0.589	0.165	Oct 2011	0.165	Oct 2012	-		0.165	Continuing	Continuing	Continuing
SBIR Assessment	Various	Various:Various	0.443	-		-		-		-	Continuing	Continuing	Continuing
Acquisition Workforce	Various	Various:Various	0.021	-		-		-		-	Continuing	Continuing	Continuing
Program Management Support	Various	Various:Various	0.430	0.448	Oct 2011	0.421	Oct 2012	-		0.421	0.000	1.299	
Program Management Support	Various	Various:Various	0.269	0.280	Jan 2012	0.263	Jan 2013	-		0.263	0.000	0.812	
Program Management Support	Various	Various:Various	0.377	0.348	Apr 2012	0.276	Apr 2013	-		0.276	0.000	1.001	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>
---	--	--

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	PNSY:Portsmouth, NH	-	0.127	Oct 2011	0.263	Oct 2012	-		0.263	0.000	0.390	
<b>Subtotal</b>			8.566	1.368		1.388		-		1.388			

**Remarks**  
Items citing various are due to contract competitions in process.

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	72.896	6.489		3.491		-		3.491			

**Remarks**

**APPROPRIATION/BUDGET ACTIVITY**

1319: Research, Development, Test & Evaluation, Navy  
 BA 4: Advanced Component Development & Prototypes (ACD&P)

**R-1 ITEM NOMENCLATURE**

PE 0603713N: Ocean Engineering Tech Dev

**PROJECT**

0394: Shallow Depth Diving EQ

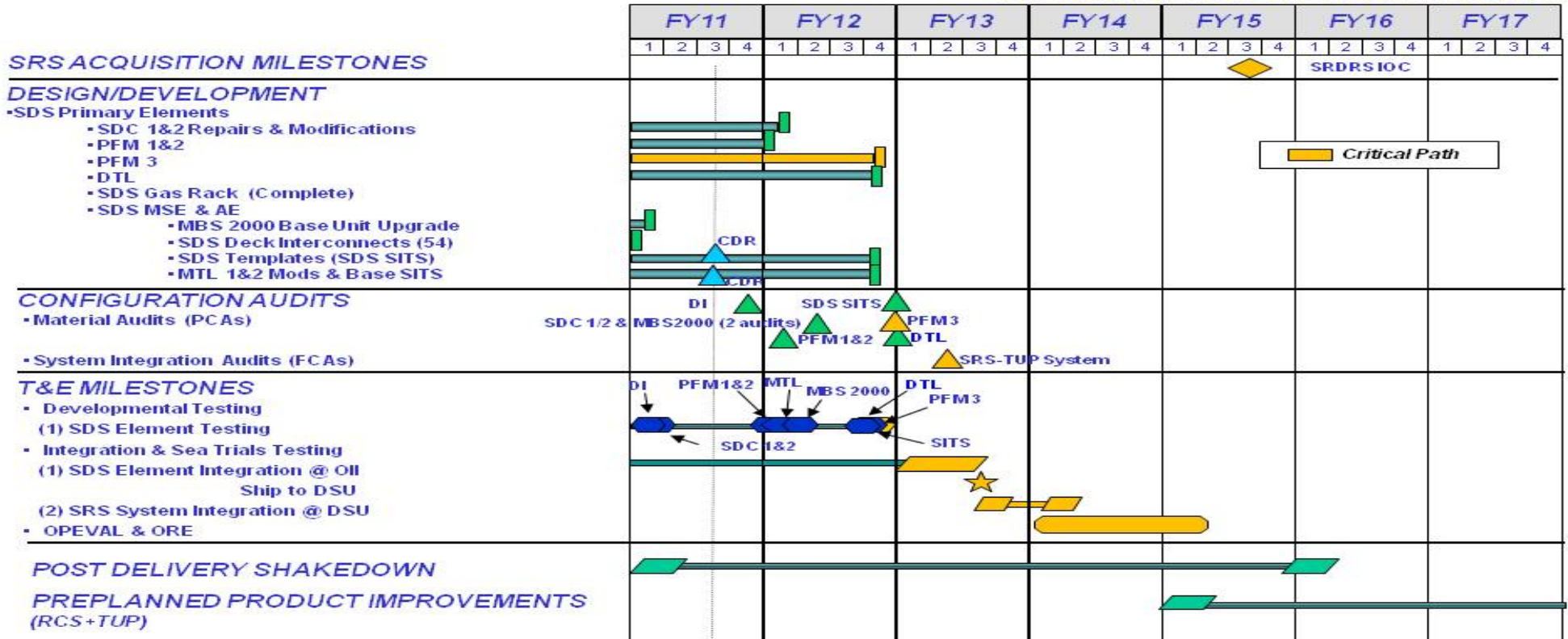


# SRDRS Acquisition

## Transfer Under Pressure



Based on IMS Baseline (13 July 2010) revision 17 Mar 2011





**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>
---	--	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0394</b>				
Acquisition Milestones	1	2011	4	2017
SRDRS IOC	3	2015	3	2015
Design & Development-SDS Primary Elements	1	2011	4	2012
SDC 1 & 2 Repairs & Modifications	1	2011	1	2012
PFM 1 & 2	1	2011	1	2012
PFM 3	1	2011	4	2012
DTL	1	2011	4	2012
SDS MSE & AE	1	2011	4	2012
MBS 2000 Base Unit Upgrades	1	2011	1	2011
SDS Deck Interconnects (54)	1	2011	1	2011
SDS Templates (SDS SITS)	1	2011	4	2012
SDS Templates (SDS SITS) CDR	3	2011	3	2011
MTL 1 & 2 Mods & Base SITS	1	2011	4	2012
MTL 1 & 2 Mods & Base SITS CDR	3	2011	3	2011
Configuration Audits	1	2011	2	2013
Material Audits (PCAs)	1	2011	4	2012
System Integration Audits (FCAs)	2	2013	2	2013
T&E Milestones	1	2011	2	2015
Developmental Testing (SDS Elements)	1	2011	4	2012
Integration & Sea Trials Testing	1	2011	2	2014
SDS Element Integration @ OII	1	2011	3	2013

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603713N: <i>Ocean Engineering Tech Dev</i>	<b>PROJECT</b> 0394: <i>Shallow Depth Diving EQ</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Ship to DSU	3	2013	3	2013
SRS System Integration @ DSU	3	2013	2	2014
OPEVAL & ORE	1	2014	2	2015
Post Delivery Shakedown	1	2011	2	2016
Preplanned Product Improvements (RCS & TUP)	1	2015	4	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	19.473	21.714	21.080	-	21.080	21.615	21.934	22.110	22.548	Continuing	Continuing
0401: <i>Shipboard Waste Mgmt</i>	5.859	7.705	7.596	-	7.596	7.920	7.760	7.583	7.731	Continuing	Continuing
0817: <i>Environmental Sustainability Development (NESDI)</i>	5.965	5.845	5.889	-	5.889	5.997	6.186	6.366	6.486	Continuing	Continuing
9204: <i>Marine Mammal Research</i>	7.649	8.164	7.595	-	7.595	7.698	7.988	8.161	8.331	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

Many environmental laws, regulations, and policies impose restrictions on Navy vessels, aircraft, and facilities that interfere with operations and/or increase the cost of operations. The Navy must be able to conduct its national security mission in compliance with applicable environmental requirements in the U.S. and abroad without compromising performance, safety, or health, while simultaneously minimizing the cost of compliance. This program develops and evaluates processes, hardware, systems, and operational procedures that will allow the Navy to operate in U.S., foreign, and international waters, air, space, and land areas while complying with environmental laws, regulations, Executive Orders, policies and international agreements. The projects for this program element support the Navy's compliance with the (a) Clean Water Act, (b) Act to Prevent Pollution from Ships, (c) International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), (d) DoD 4715.6 R1, Regulations on Vessels Owned or Operated by the Department of Defense, (e) OPNAVINST 5090.1C, Environmental and Natural Resources Program Manual, (f) 40 CFR Part 9 and Chapter VII (Uniform National Discharge Standards [UNDS] Phase I Standard), (g) Executive Order (EO) 13148, Greening the Government Through Leadership in Environmental Management, (h) Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, (i) National Invasive Species Act of 1996, (j) 33 CFR 151 Subpart D-Ballast Water Management for Control of Nonindigenous Species in Waters of the United States, (k) Clean Air Act, (l) Federal Insecticide, Fungicide, and Rodenticide Act, (m) Executive Order (EO) 13423 Strengthening Federal Environmental, Energy, and Transportation Management of 24 January, 2007. References (a) through (m) establish Level I environmental protection requirements for Navy shipboard systems, operations, and discharges in the areas of liquid wastes, hazardous materials, solid wastes, and other significant afloat environmental concerns. Project 0401 supports RDT&E efforts that enable Navy ships and submarines to comply with laws, regulations, and policies in six major areas: (1) Liquid Wastes, (2) UNDS Rulemaking, (3) Hazardous Materials and Pollution Prevention, (4) Hull Antifouling Paints, (5) Technical Authority, and (6) Ballast Water Exchange Improvements. Project 0817 supports RDT&E to develop and validate technologies to enable Navy facilities to comply with environmental laws, regulations, and policies in a cost-effective manner. Project 9204 supports RDT&E to develop planning and monitoring tools for minimizing Fleet contacts with and potential harassment (physiological and behavior) of marine animals including threatened and endangered species in response to Federal laws and regulations and public scrutiny.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>				
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603721N: <i>Environmental Protection</i>				
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>					

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	20.207	21.714	21.923	-	21.923
Current President's Budget	19.473	21.714	21.080	-	21.080
Total Adjustments	-0.734	-	-0.843	-	-0.843
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.631	-			
• Program Adjustments	-	-	-0.713	-	-0.713
• Rate/Misc Adjustments	-	-	-0.130	-	-0.130
• Congressional General Reductions Adjustments	-0.103	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
 Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0401: <i>Shipboard Waste Mgmt</i>	5.859	7.705	7.596	-	7.596	7.920	7.760	7.583	7.731	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Navy ships and submarines must routinely operate in U.S., international, and foreign waters, and visit numerous U.S. and foreign ports. No body of water is without environmental restrictions that impact the movements and operations of Navy vessels. Environmental requirements tend to be most restrictive in port and in coastal waters, where the Navy's increasing littoral presence places ships and submarines in discharge-restricted waters for longer periods of time. Growing international cooperation in addressing global environmental concerns is resulting in expanding areas of ocean considered environmentally susceptible, where special prohibitions on ship discharges and operations are imposed. Navy vessels must comply with applicable environmental legal requirements while maintaining continued access to all waters for operations, exercises, training, and port access. The large crews and limited on-board space of Navy ships and submarines severely constrain their ability to hold wastes for return to port for shore side disposal. The Shipboard Waste Management RDT&E project evaluates and develops shipboard environmental equipment, systems, technologies, processes, and practices to comply with environmental laws, regulations, Executive Orders, international agreements, foreign-country requirements, and DoD and Navy policies. The project focuses on providing engineering criteria, design guidance, and performance specifications for selecting, procuring, installing, integrating, and operating environmental equipment and systems on Navy ships and submarines, and on defining and developing processes, procedures and logistics support requirements. Environmental equipment, systems, processes and practices must meet legal environmental requirements and be reliable, maintainable and achievable at sea, and impose no or low manning burden. Environmental equipment and systems must meet Navy-unique shipboard requirements (performance, space, weight, shock, vibration, electromagnetic compatibility, manning, automation, etc.), incorporate integrated logistics support, minimize life-cycle cost, and include validated acquisition, design, installation, and operating documentation. Shipboard processes and practices must be feasible and must be compatible with ship and submarine operational, maintenance, manning, habitability, health, and safety requirements. It also addresses afloat environmental issues other than shipboard wastes, e.g., access to environmental data for planning Fleet operations and exercises. The Shipboard Environmental Protection Branch (SEA 05P5) is the designated Technical Warrant Holder for Environmental Systems & Materials Engineering, with responsibility and accountability for ensuring that ships and submarines are designed and upgraded, and can be operated, in compliance with existing and anticipated environmental requirements while minimizing total ownership cost and manning. This responsibility encompasses legacy platforms and new vessel designs, as well as Fleet operations exercises, and training.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Technical Authority	1.977	2.264	2.280
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Continued developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.			
<b>FY 2012 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities. <b>FY 2013 Plans:</b> Continue developing environmental equipment/system requirements documentation, design criteria and guidance, specifications and standards, and certification protocols, and perform test and evaluation, to facilitate execution of technical authority for legacy and new-design ship and submarine environmental capabilities.				
<b>Title:</b> Integrated Liquid Wastes		2.762	3.141	3.087
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Continued to support rulemaking process in development of Uniform National Discharge Standards (UNDS). Continued development of marine pollution control device (MPCD) treatment systems, technologies and procedures, and evaluation of commercial off-the-shelf (COTS) wastewater systems. <b>FY 2012 Plans:</b> Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems. <b>FY 2013 Plans:</b> Continue to support rulemaking process in development of UNDS. Continue development of MPCD treatment systems, technologies and procedures, and evaluation of COTS wastewater systems.				
<b>Title:</b> Hazardous and Other Major Ship Wastes		0.748	1.100	1.216
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Continued shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. Completed development and testing of new low/no-copper underwater hull antifouling coatings. <b>FY 2012 Plans:</b> Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines. <b>FY 2013 Plans:</b>				

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Continue shipboard hazardous materials substitution and elimination process, and continue test and evaluation of pollution-prevention equipment aboard surface ships and submarines.			
<b>Title:</b> Common Systems Assessment, Evaluation and Specification  <b>Articles:</b>	-	0.200 0	-
<b>FY 2012 Plans:</b> Conduct testing of commercial off-the-shelf (COTS) equipment to gain additional information in support of new acquisition program decisions and equipment replacement programs for in-service ships. Candidate systems will be evaluated at two stages. The first stage is a written assessment of the ability to meet life cycle cost goals and technical, operational, and performance standards based on design drawings and manufacturer provided performance data. The second stage is laboratory testing of candidate systems down-selected from the first stage.			
<b>Title:</b> Ballast Water Exchange  <b>Articles:</b>	0.372 0	1.000 0	1.013 0
<b>FY 2011 Accomplishments:</b> Continued ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.			
<b>FY 2012 Plans:</b> Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.			
<b>FY 2013 Plans:</b> Continue ballast water double exchange surveys and procedural product developmental test and evaluation on Expeditionary Warfare ships.			
<b>Accomplishments/Planned Programs Subtotals</b>	5.859	7.705	7.596

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTEN/0601153N: <i>Defense Research Sciences</i>	418,108.000	446.123	460.129	0.000	460.129	483.525	504.318	526.538	550.270	0.000	4,214,76.084

**D. Acquisition Strategy**

RDT&E Contracts are Competitive Procurements.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>

**E. Performance Metrics**

Quarterly Program Reviews



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ancillary Hardware Development	Various	Misc. Contracts:Not Specified	19.149	-		-		-		-	0.000	19.149	Continuing
Primary Hardware Development	C/CPFF	Oceaneering:Not Specified	1.000	-		-		-		-	0.000	1.000	Continuing
Systems Engineering	C/CPFF	John J. McMullen & Son:Not Specified	4.487	-		-		-		-	0.000	4.487	Continuing
<b>Subtotal</b>			24.636	-		-		-		-	0.000	24.636	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	WR	SPAWAR:Charleston, SC	10.838	-		-		-		-	0.000	10.838	Continuing
<b>Subtotal</b>			10.838	-		-		-		-	0.000	10.838	

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	US Army Corps of Engineers:Norfolk, VA	0.687	-		-		-		-	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWCCD, Bethesda, MD:Bethesda, MD	174.528	6.750	Nov 2011	6.707	Nov 2012	-		6.707	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWCIHD:Indian Head, MD	-	0.701	Feb 2012	0.647	Feb 2013	-		0.647	0.000	1.348	
Developmental Test & Evaluation	WR	NRL,Wash,DC:Wash,DC	30.661	-		-		-		-	0.000	30.661	
Developmental Test & Evaluation	WR	SPAWARSYSCEN:SD,CA	11.952	0.113	Nov 2011	0.113	Nov 2012	-		0.113	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	Misc. Govt Labs:TBD	22.975	-		-		-		-	0.000	22.975	
Developmental Test & Evaluation	C/CPFF	SAIC:San Diego, CA	15.570	-		-		-		-	0.000	15.570	
Developmental Test & Evaluation	C/CPFF	Misc. Contracts:TBD	13.103	0.111	Feb 2012	0.099	Feb 2013	-		0.099	Continuing	Continuing	Continuing
Process Control Engineering	C/CPFF	M. Rosenblatt & Sons:Arlington, VA	6.547	-		-		-		-	0.000	6.547	Continuing
Developmental Test & Evaluation	C/CPFF	ONR:Arlington, VA	0.400	-		-		-		-	0.000	0.400	Continuing
Developmental Test & Evaluation	WR	Naval Postgraduate School:Monterey, CA	1.800	-		-		-		-	0.000	1.800	Continuing
Process Control Engineering	MIPR	EPA, Hdqtrs:Washington, DC	0.840	-		-		-		-	0.000	0.840	Continuing
<b>Subtotal</b>			279.063	7.675		7.566		-		7.566			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	NAVSEA HQ:Washington, DC	0.310	0.030	Nov 2011	0.030	Nov 2012	-		0.030	Continuing	Continuing	Continuing
SBIR Assessment	TBD	Not Specified:Not Specified	0.078	-		-		-		-	0.000	0.078	Continuing
<b>Subtotal</b>			0.388	0.030		0.030		-		0.030			

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			314.925	7.705		7.596		-		7.596			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>SHIPBOARD WASTE MANAGEMENT</b>																												
Uniform National Discharge Standards (UNDS ) Rulemaking																												
Develop & Evaluate Marine Pollution Control Device Systems & Technologies																												
Evaluate Commercial Wastewater Treatment Systems																												
Hazardous Materials and Pollution Prevention																												
Low/No-Copper Hull Antifouling Coatings																												
Technical Authority																												
Ballast Water Exchange																												
Common Systems Assessment, Evaluation and Specification																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0401: <i>Shipboard Waste Mgmt</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>SHIPBOARD WASTE MANAGEMENT</b>				
Uniform National Discharge Standards (UNDS ) Rulemaking	1	2011	4	2017
Develop & Evaluate Marine Pollution Control Device Systems & Technologies	1	2011	4	2017
Evaluate Commercial Wastewater Treatment Systems	1	2011	4	2017
Hazardous Materials and Pollution Prevention	1	2011	4	2017
Low/No-Copper Hull Antifouling Coatings	1	2011	4	2011
Technical Authority	1	2011	4	2017
Ballast Water Exchange	1	2011	4	2015
Common Systems Assessment, Evaluation and Specification	1	2012	4	2012

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>				<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0817: <i>Environmental Sustainability Development (NESDI)</i>	5.965	5.845	5.889	-	5.889	5.997	6.186	6.366	6.486	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Inherent to the realization of the vision outlined in Sea Power 21 are certain environmental consequences that will, to a lesser or greater degree, be an impact on the Navy's ability to fully achieve the strategy outlined in the Navy Capability Pillars (NCP) SEA SHIELD, SEA STRIKE, SEA BASING and FORCENet and the supporting initiatives of SEA WARRIOR, SEA TRIAL and SEA ENTERPRISE. Readiness and training are primary considerations for determining whether any fighting force is at its peak proficiency. The ability to train our forces in a realistic environment is paramount. Today's reality requires training and operating within environmental constraints (national and international laws and agreements), and searching for alternatives to comply with and alleviate those constraints. Moreover, as we develop new systems and technologies in support of Sea Power 21, the Navy must anticipate potential environmental regulations which, while not currently an issue, could in the future adversely impact our ability to project and sustain our forces at home and abroad.

This program identifies pervasive Navy shore side environmental requirements and develops and validates information, new processes, and technologies that address requirements that pose significant impact on Naval shore activities in complying with environmental laws, regulations, orders, and policies. The goal of the program is to maximize opportunities for significant cost savings while minimizing personnel liabilities, operational costs, and regulatory oversight and preserving or enhancing the ability of Naval shore activities to accomplish their required missions and functions in support of the Navy's transformational strategy. Program investments supports 4 of 5 Environmental Enabling Capabilities (EEC-2 through 5) that are required to meet the objectives of Sea Power 21.

**EEC-2 MAXIMIZE TRAINING AND TESTING RANGE REQUIREMENTS WITHIN ENVIRONMENTAL CONSTRAINTS:** This capability addresses environmental impacts and restrictions at Navy land and sea ranges, including munitions testing and manufacturing, to ensure Navy ranges are available to conduct required training and testing operations for the Fleet. Investments in EEC-2 provide validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. The results support operational readiness by providing the tools and technologies necessary for sustaining and managing Navy land and sea ranges related to unexploded ordnance (UXO) and munitions, encroachment, air quality, airborne noise, water quality, and wetlands. Capabilities gained include the ability to assess and determine the risks from underwater UXO, the evaluation and prioritization ordnance contaminated sites for evaluation in environmental programs, and the implementation of range specific best management practices by evaluating and modeling available process, procedures, and technologies.

**EEC-3 PLATFORM MAINTENANCE AND REPAIR WITH MINIMAL ENVIRONMENTAL FOOTPRINT:** This capability focuses on minimizing or eliminating environmental impact related to Navy and Marine Corps weapon system repair and maintenance operations. Investments in EEC-3 provide valid knowledge, models, process, and technologies to minimize regulated emissions, discharges and hazardous material usage during the repair and maintenance of ships, submarines, and surface/sub-surface vehicles and aircraft and air vehicles. The program supports Fleet operational readiness and Navy acquisition communities by investing in information to understand emerging environmental requirements and to develop innovative processes and technologies that result in savings while reducing the fleet

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
---	--	---

environmental constraints related to platform maintenance. Capabilities and benefits gained include, but are not limited to, the reduction in the usage of heavy metals used in metal finishing (chromium and cadmium), reduced hazardous air pollutant (HAP) emissions, and the development of best management practices and tools to minimize the use of hazardous materials and the generation of hazardous wastes associated with maintaining and repairing ships, submarines and aircraft and unmanned vehicles. Results of program investments will be leveraged across weapon system and platform acquisition to ensure continued reduction in lifecycle costs and long-term environmental compliance burdens to the Fleet.

EEC-4. SUPPORT SHORE READINESS WITHIN ENVIRONMENTAL CONSTRAINTS: Naval shore establishment requires the capability to operate and maintain facilities and provide waterfront and airfield services to the fleet while complying with applicable environmental regulations and minimizing environmental impacts and costs. The program invests in knowledge and innovative processes and technologies that minimize infrastructure and operational costs, regulated emissions, while minimizing discharges and hazardous material usage from ship (waterfront) and aviation operations. Capabilities and benefits gained under EEC-4 include reduced costs associated with wastewater treatment, elimination/reduction in the use of HAPs, ozone depleting substances (ODSs), and volatile organic compounds (VOCs), and the associated reporting requirements, reduced hazardous waste and disposal costs, and improved storm water management.

EEC-5. COST-EFFECTIVE MANAGEMENT OF ENVIRONMENTAL REGULATORY REQUIREMENTS: The environmental compliance regulations require base managers to permit, monitor and report on many processes associated with weapon system and platform operations. Naval shore environmental managers require the capability to efficiently and cost effectively manages these compliance requirements. Under EEC-5, the program invests in improved data collection, methods, and models to assess environmental impacts and ecological risk assessments of Naval Operations on harbors, U.S. waterways, and surrounding communities. Benefits include gaining standardized technical environmental management improvements/techniques related to source control, assessment, and monitoring. EEC-5 also provides validated knowledge, models, processes and technologies to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments.

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b>Title:</b> Maximize Training &amp; Testing Requirements Within Environmental Constraints</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Completed the laboratory analysis of the long term disposition of seafloor cables which will identify cable impacts to the marine environment aiding the sustainment and management of Navy underwater ranges and support new underwater surveillance systems that require the laying of seafloor hardware and cables. Completed the analysis of the environmental effects of lasers on biota in the marine environment. The culmination of this work will provide the Navy environmental planning offices with the tools necessary to technically defend EISs as they relate to the use of lasers in the marine environment. Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. Continued effort to assess environmental risk associated with military expendable material which is used on underwater ranges. Continued the validation of forensic approaches to perchlorate source identification at Navy ranges. Implement best management practice DEM/VAL for mitigation of environmental impacts</p>	<p>2.141</p> <p>0</p>	<p>1.913</p> <p>0</p>	<p>1.370</p> <p>0</p>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>from venting of full scale practice bombs at Navy ranges. Conduct field study for long term disposition of seafloor communication cables.</p> <p><b>FY 2012 Plans:</b> Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test ranges to maximize the availability and utilization of the ranges. Continuation of the risk assessment associated with military expendable material used in underwater ranges. Finalize process to determine background perchlorate sources at Navy ranges. Conduct one-year post-survey for cable pull field study to determine long term effects and site recovery of a cable removal in the near-shore environment. Complete assessment of alternative tank target. Initiate demonstration of passive samplers for assessing environmentally realistic concentrations of munitions constituents at Underwater Unexploded Ordnance sites and the detection and classification of munitions and explosives of concern in shallow highly dynamic underwater environments.</p> <p><b>FY 2013 Plans:</b> Complete the validation of forensic approaches to perchlorate natural and anthropogenic source identification at Navy ranges. Continue providing validated knowledge, models, and processes to mitigate environmental impacts, restrictions, and costs at Navy training and test range to maximize the availability and utilization of the ranges.</p>				
<p><b>Title:</b> Maintenance</p> <p><b>FY 2011 Accomplishments:</b> Completed aircraft sustainment related projects such as non-chromated post treatment, and low temperature powder coating. Alternative solvent demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals continued. As a result of this effort, a new HAP-free/low-VOC cleaner specification was developed and issued. The development of hazardous material allocation information for ship maintenance continued as did the bio-based hydraulic and metal working fluids demonstration. Continue to demonstrate tools/mitigation measures for coating operations on vessel freeboard areas, transition prohibited and controlled chemical list to user community, determine additional mil standard for solvent substitutions, and perform corn hybrid polymer demonstrations. Further testing on cadmium tank electroplating alternatives and electrical connectors' evaluation. Completed demonstration of the use of plastic blast media and removed coke deposits from the F404 engine shaft, thereby eliminating the use of a hazardous cleaning compound from this maintenance procedure.</p> <p><b>FY 2012 Plans:</b> Continue all aviation sustainment related projects related to chrome alternatives and cadmium reductions, continue the elimination of overspray in shipbuilding and facilities maintenance operations. Initiate projects on cyanide waste reduction of electroplating</p>		0.848 0	0.900 0	1.080 0
		<b>Articles:</b>		

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
and stripping process, lead-free electric primers for medium caliber ammunition, and mobile pier and facility waste water treatment system. <b>FY 2013 Plans:</b> Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting from the repair and maintenance of ships, submarines, and aircraft. Complete aircraft sustainment related projects. Develop dry dock best management practices and decision selection tool assisting Naval Shipyards, stations and bases in meeting the copper discharge standards. Alternative solvents demonstrations for ship maintenance operations and identification of alternatives for NAVSEA targeted chemicals continue. The development of hazardous material allocation information for ship maintenance continues.				
<b>Title:</b> Support Shore Readiness within Environmental Constraints <b>Articles:</b>		2.473 0	2.432 0	1.250 0
<b>FY 2011 Accomplishments:</b> Completed the navigational dredge spoil management IDR. Complete transition efforts for NoFoam™ System for firefighting pumper trucks and the No Foam™ system for aircraft hangar fire suppression system. Initiate dem/val of a hull maintenance shroud to capture waste streams during repair and painting operations. Continue validation of a mobile surface cleaning technology for critical cleaning of shore side surfaces to remove contaminants. Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, and other base operations. This includes final demonstration for the Motion Assisted Environmental Enclosure (MAEE) for overspray containment and completed the vertical launch missile tube demonstration. <b>FY 2012 Plans:</b> Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support such as the hull maintenance shroud and transition of MAEE. Initiate a methodology to assess essential fish habitat for Navy coastal properties. <b>FY 2013 Plans:</b> Continue providing new systems and processes to minimize regulated emissions, discharges and hazardous material usage resulting specifically from waterfront support, aviation support, and other base operations. Continue select demonstrations of alternative solvents for industrial operations.				
<b>Title:</b> Cost-Effective Management of Environmental Regulatory Requirements <b>Articles:</b>		0.503 0	0.600 0	2.189 0
<b>FY 2011 Accomplishments:</b>				



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
---	--	---

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

	FY 2011	FY 2012	FY 2013
<p>Complete the waste to clean energy IDR and the metal cutting IDR. Complete the Chemical Safety Environmental Management System Enterprise (CS-EMS) demonstration for a potential enterprise solution. Complete the Predictive Trajectory Model for oil spills for Navy harbors. Complete assessment strategy for vapor intrusion. This project resulted in a technical report that identifies existing best practices, knowledge and data gaps, and future research in vapor intrusion assessment strategies. Conduct VLS wastewater treatment system demonstration. Complete pollutant source tracking effort; the real-time drinking water quality monitoring system; sustainable naval facilities; and use of biodiesel for ground tactical vehicles. Continue with the evaluation of re-suspension associated with dredging, extreme storm events and propeller wash modeling effort. Continue with the demonstration of navigational dredge material for beneficial use; the abiotic treatment of 1,2,3-trichloropropane (TCP) to protect drinking water resources; the automated condition assessment of coral reefs; and the predictive aquatic fate and transport model in support of Total Maximum Daily Load (TMDL). Initiate efforts electrochemical detection and load reduction of copper and zinc in storm water runoff; innovative technologies to control emissions from metal cutting operations; optimization of the storm water dual media filtration system at the NRRC in San Diego; modeling tool for Navy facilities to quantify sources, loads &amp; mitigation actions of metals in storm water discharges; compliance with the emerging requirements of the Stage II disinfectant and disinfection byproduct rule; methodology for identifying and quantifying metal pollutant sources in storm water runoff ; and Navy-wide expansion of the Programmatic Environmental, Safety and Health Evaluation Document Authoring Tool.</p> <p><b>FY 2012 Plans:</b></p> <p>Continue providing validated knowledge, models, processes and systems to improve environmental monitoring and reporting, and to reduce the cost of compliance with regulations applicable to coastal contamination and contaminated sediments. Reduce Contaminant Transport Associated with Storm water Runoff. Continue efforts such as electrochemical detection and load reduction of copper and zinc in storm water runoff; innovative technologies to control/reduce emissions from metal cutting operations; optimization of the storm water dual media filtration system at the NRRC in San Diego; modeling tool for Navy facilities to quantify sources, loads &amp; mitigation actions of metals in storm water discharges; compliance with the emerging requirements of the Stage II disinfectant and disinfection byproduct rule; methodology for identifying and quantifying metal pollutant sources in storm water runoff ; and Navy-wide expansion of the Programmatic Environmental, Safety and Health Evaluation document authoring tool. Continue with leveraged efforts Smart Water Conservation Systems for Irrigated Landscapes; water conservation: treatment and recycling of waste water; heavy diesel hybrid demonstration; demonstration and validation of sediment ecotoxicity assessment ring technology for assessment of ecological exposure; demonstration and validation of delivery and stability of reactive amendments for the in situ treatment of contaminated sediments in Navy harbors. Initiate work in the separation, detection, and removal of MEC/UXO from dredged sediment using physical separation, low cost selective polymer and laser interferometer real time sensors for detection of solvents in contaminated groundwater plumes, validation of a low tech storm water procedural best management practice, dynamic mixing zone modeling for NPDES permits, and toxicity associated with poly-aromatic hydrocarbons used in clay targets. Continue to collect data to establish guidelines and</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
limitations for the use of biodiesel with ground tactical vehicles and equipment in order to reduce hazardous emissions from diesel engines.  <b><i>FY 2013 Plans:</i></b> Continue providing validate knowledge, models, processes and systems to improve environmental monitoring and reporting, and reduce the cost to compliance with regulations applicable to coastal contamination and contaminated sediments. Continue DEM/VA of Automated Condition Assessment of Coral Reefs at Guam Apra Harbor.			
<b>Accomplishments/Planned Programs Subtotals</b>	5.965	5.845	5.889

**C. Other Program Funding Summary (\$ in Millions)**  
N/A

**D. Acquisition Strategy**  
 This project is categorized as Non-ACAT (Non Acquisition). The project delivers a broad spectrum of products that require a variety of acquisition processes to implement. Equipment products for naval stations and other mission funded activities costing over \$100K are often procured directly through the base operating budget. Equipment products for Shipyards and other Navy Working Capital Fund (NWCF) activities costing over \$100K are procured through their Capital Purchases Program (CPP). For both types of activities, equipment products costing less than \$100K, and process changes not requiring the purchase of new equipment such as consumable material or product substitutions, are funded through the activity's operating budgets. Occasionally there is a technology that must be implemented as a specialized facility. These are acquired through the Military Construction (MCON) Program. All these acquisition processes are pursued using a common strategy that satisfies the needs of all the critical stakeholders: 1) Fleet end user; 2) Funding sponsor for the Navy end user; 3) Other stakeholders with cognizance over the Navy process or operation being changed, 4) Cognizant environmental federal, state, and local regulators; and 5) The private or government organization that will produce the product.

**E. Performance Metrics**  
 Quarterly Budget Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
EEC 2	Various	NFESC:PT HUENEME, CA	1.742	0.682	Oct 2011	0.302	Oct 2012	-		0.302	0.000	2.726	Continuing
EEC 2	Various	SSC:SAN DIEGO, CA	2.871	1.231	Aug 2012	0.764	Mar 2013	-		0.764	0.000	4.866	Continuing
EEC 2	Various	NSWC:BETHESDA, MD	0.717	-		-		-		-	0.000	0.717	Continuing
EEC 3	Various	NAWC:PATUXENT RIVER, MD	0.819	0.300	Aug 2012	0.300	Mar 2013	-		0.300	0.000	1.419	Continuing
EEC 3	Various	NSWC:BETHESDA, MD	2.234	0.400	Aug 2012	0.400	Feb 2013	-		0.400	0.000	3.034	Continuing
EEC 3a	Various	NSWC:BETHESDA, MD	1.019	-		-		-		-	0.000	1.019	Continuing
EEC 3b	Various	NFESC:PT HUENEME, CA	0.200	0.200	Oct 2011	0.267	May 2013	-		0.267	0.000	0.667	Continuing
EEC 4	Various	NFESC:PT HUENEME, CA	4.511	0.632	Jul 2012	0.632	Aug 2013	-		0.632	0.000	5.775	Continuing
EEC 4	Various	NSWC:BETHESDA, MD	1.511	0.950	Jun 2012	0.950	Oct 2012	-		0.950	0.000	3.411	Continuing
EEC 4a	Various	SSC:SAN DIEGO, CA	1.710	0.850	Jul 2012	0.800	Apr 2013	-		0.800	0.000	3.360	Continuing
EEC 5	Various	NFESC:PT HUENEME, CA	0.831	0.300	Apr 2012	0.300	Jul 2013	-		0.300	0.000	1.431	Continuing
EEC 5	Various	SSC:SAN DIEGO, CA	0.705	-		-		-		-	0.000	0.705	Continuing
EEC 5	Various	NAWC:PATUXENT RIVER, MD	0.326	0.300	Jul 2012	0.300	Jun 2013	-		0.300	0.000	0.926	Continuing
EEC 5	Various	NSWC:BETHESDA, MD	0.415	-	Jun 2012	-	Jun 2013	-		-	0.000	0.415	Continuing
EEC 5	Various	NAWCWD:CHINA LAKE, CA	-	-		0.400	May 2013	-		0.400	0.000	0.400	Continuing
EEC 5	Various	NAWC:LAKE HURST, NJ	-	-		0.200	May 2013	-		0.200	0.000	0.200	Continuing
EEC 5	Various	NSWC:INDIAN HEAD, MD	-	-		0.274	Aug 2013	-		0.274	0.000	0.274	Continuing
<b>Subtotal</b>			19.611	5.845		5.889		-		5.889	0.000	31.345	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
---	--	---

Product Development (\$ in Millions)				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total		Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				

**Remarks**  
 Performing Activities: Naval Surface Warfare Center, Carderock Division (NSWC/CD), Naval Facilities Engineering Service Center (NFESC/MD), Naval Surface Warfare Center, Indian Head Division (NSWC/Bethesda MD), Space and Warfare Systems Center, San Diego (SSC/SC), Naval Air Warfare Center (NAWC/PAX), Naval Air Warfare Center (NAWCWD/China Lake) Total Prior Years Cost: Subtotal does not include performing activities from prior years that are no longer performing activities. Award Dates: About 55% of the project is executed via contracts awarded by the performing activities.

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	19.611	5.845		5.889		-		5.889	0.000	31.345	

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>
---	--	---

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Proj 0817</b>																												
EEC 2																												
EEC 3																												
EEC 4																												
EEC 5																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 0817: <i>Environmental Sustainability Development (NESDI)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0817</b>				
EEC 2	1	2011	4	2017
EEC 3	1	2011	4	2017
EEC 4	1	2011	4	2017
EEC 5	1	2011	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9204: <i>Marine Mammal Research</i>	7.649	8.164	7.595	-	7.595	7.698	7.988	8.161	8.331	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Navy has been and will continue to be subject to litigation with regard to the potential injuring and killing of marine animals by the use of intense underwater sound. Since Fleet operation and training areas coincide with known or probable marine mammal habitats, migration routes, or breeding areas, the possibility exists that such incidents are likely to continue in the future. The increasing public interest and pressure has resulted in escalating Fleet costs. For example, Fleet and SYSCOM development activities have been interrupted, modified, or altogether cancelled and environmental regulations have, among other things, required new ship construction shock trials to obtain Federal permits and conduct extensive environmental planning that can take several years to complete. The incorporation of mitigation measures in Fleet training operations to minimize the potential adverse effects on protected marine animals can significantly reduce the realism of these operations. In addition, the testing, evaluation, and deployment of new sonar detection and monitoring systems that use active acoustics are under intense public scrutiny for their potential adverse effects on whales and other marine mammals. Navy needs scientific evidence to substantiate its claims of limited or inconsequential adverse effects to marine life from operations.

This project primarily focuses on the development of planning, monitoring, and mitigating tools to aid the Fleet in minimizing contact with and the potential harassment of protected marine animals during operations, exercises, training, and undersea surveillance and weapons testing. These new capabilities will encompass historical and newly acquired data and analytical models that together can predict marine animal habitats (where they are likely to be) and their natural and expected behavior (diving patterns, prey localization, calling activity, etc.). This project consists of three major areas that will help ensure Navy compliance with the Marine Mammal Protection Act (MMPA).

These areas are (1) Marine Mammal Ecology and Population Dynamics- Determine the likelihood of the presence of marine mammal species during observed and forecast oceanographic conditions by developing habitat and ecological models. Refine marine mammal survey techniques to optimize the accuracy of abundance estimates in small ocean regions of Navy interest.

Conduct analysis of long range, low frequency marine mammal vocalizations to determine natural variations in population estimates, residency, and migration routes over large ocean regions; (2) Criteria, Thresholds, and Mitigation - Establish criteria and thresholds from which to measure potential impact on marine mammals from Navy training

operations. Determine the effectiveness and usefulness of various mitigation measures in relation to the potential impact of Navy operations on marine mammals; and (3) Passive Acoustic Monitoring - Conduct Passive Acoustic Monitoring of Marine Mammals, particularly on Navy undersea ranges. Several feasibility demonstrations reveal the potential of passive acoustic monitoring as a unique form of mitigation and a special tool to obtain critical information about normal marine mammal behavior. Any impact of Navy operations on marine mammals, particularly behavior modification, will be derived after normal variations in marine mammal behavior resulting from natural factors are determined. Several remaining unknowns must be addressed before passive acoustic monitoring techniques are developed as an institutionalized system available to the Fleet.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
---	--	---

Accurate and timely monitoring and predicting the movement of whales and other protected marine animals plus an enhanced knowledge of how marine animals may react to Fleet activities (e.g., physiological and behavioral effects) will reduce Navy interaction with these animals; minimize the risk that legally-imposed monitoring and avoidance measures will adversely affect Fleet operations and exercises; minimize the substantial costs associated with operations, exercises, and tests that have to be modified or curtailed as a result of concerns about protected marine animals; and will reduce the likelihood of litigation related to actual or anticipated compliance problems with protected animals.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Marine Mammal Ecology and Population Dynamics</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Continue investigations in marine mammal location, abundance, and movement through habitat investigations; predictive models; marine mammal database; and data analysis, protocols and surveys.</p> <p><b>FY 2012 Plans:</b> Continued research on integrated ecosystems; sensor and tag development; marine mammal diving and stress physiology, and the population structure of beaked whales in the vicinity of Navy training ranges.</p> <p><b>FY 2013 Plans:</b> Continued research on integrated ecosystems; sensor and tag development; marine mammal diving and stress physiology, and the population structure of beaked whales in the vicinity of Navy training ranges.</p>	<p>1.989</p> <p>0</p>	<p>2.041</p> <p>0</p>	<p>1.936</p> <p>0</p>
<p><b>Title:</b> Criteria and Thresholds, Physiology and Behavior, and Effects of Sound</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Continue investigations in criteria and thresholds, physiology and behavior, and effects of sound through hearing sensitivity; temporary threshold shift (TTS)/Sub-TTS; physical injury models; cumulative effects of sound and/or multiple events; effects of sound on the marine mammal habitat.</p> <p><b>FY 2012 Plans:</b> Continued research to determine what constitutes biologically significant behavioral response to Navy-generated sound on individuals with respect to disruption of natural behavior patterns, ascertaining the short and long-term effects of such disruptions and documenting avoidance behaviors.</p> <p><b>FY 2013 Plans:</b></p>	<p>3.896</p> <p>0</p>	<p>4.082</p> <p>0</p>	<p>3.723</p> <p>0</p>



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Continued research to determine what constitutes biologically significant behavioral response to Navy-generated sound on individuals with respect to disruption of natural behavior patterns, ascertaining the short and long-term effects of such disruptions and documenting avoidance behaviors.			
<b>Title:</b> Mitigation Methodologies: Monitoring, New Technology, and Risk Assess	1.764	2.041	1.936
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> Continue mitigation methodologies for monitoring, new technology and risk assessment through passive acoustic monitoring; active acoustic monitoring; improved tag development; alternative monitoring; defining risk assessment variables; model risk assessment and determine mitigation effectiveness.			
<b>FY 2012 Plans:</b> Continued research to determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures. Focus to improve marine mammal monitoring capabilities over current methods by developing new and adapting existing technology.			
<b>FY 2013 Plans:</b> Continued research to determine the observation, detection and classification measures required to develop effective monitoring and mitigation procedures. Focus to improve marine mammal monitoring capabilities over current methods by developing new and adapting existing technology.			
<b>Accomplishments/Planned Programs Subtotals</b>	7.649	8.164	7.595

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• RDTEN/0601153N: <i>Defense Research Sciences</i>	418.108	446.123	460.129	0.000	460.129	483.525	504.318	526.538	550.270	0.000	3,786.192
• RDTEN/0602435N: <i>Ocean Warfighting Environment Applied Research</i>	47.645	50.076	49.295	0.000	49.295	49.987	51.615	52.706	53.602	0.000	402.024
• RDTEN/0602782N: <i>Mine &amp; Expeditionary Warfare Applied Research</i>	35.159	37.583	32.177	0.000	32.177	32.629	33.745	34.515	35.105	0.000	280.565

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
---	--	---

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTEN/0603235N: <i>Common Picture Advanced Technology</i>	93.403	49.068	43.042	0.000	43.042	45.759	42.996	40.351	42.547	0.000	455.784

**D. Acquisition Strategy**

(U) RDT&E Contracts are Competitive Procurements.

**E. Performance Metrics**

Quarterly Program Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	NUWC:Newport, RI	4.623	1.761	Nov 2011	1.632	Nov 2012	-		1.632	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	SEA Inc:California	0.965	0.265	Dec 2011	0.265	Dec 2012	-		0.265	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NPGS:Monterey, CA	2.395	0.530	Dec 2011	0.489	Dec 2012	-		0.489	Continuing	Continuing	Continuing
Developmental Test & Evaluation	MIPR	NOAA Fish Science Center:California	2.000	0.688	Dec 2011	0.632	Dec 2012	-		0.632	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Scripps Institute:California	7.173	1.062	Dec 2011	1.049	Dec 2012	-		1.049	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Oregon State Univ.:Oregon	1.206	0.274	Dec 2011	0.222	Dec 2012	-		0.222	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	Woods Hole Oceanographic Inst:Massachusettes	1.901	0.666	Dec 2011	0.563	Dec 2012	-		0.563	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SPAWAR:San Diego, CA	1.507	0.544	Nov 2011	0.515	Nov 2012	-		0.515	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	Cascadia:Cascadia, WA	1.410	1.025	Dec 2011	0.950	Dec 2012	-		0.950	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NOAA Fish Science Center:Massachusettes	0.400	0.326	Dec 2011	0.312	Dec 2012	-		0.312	Continuing	Continuing	Continuing
Developmental Test & Evaluation	SS/CPFF	San Diego State Univ:San Diego, CA	1.301	0.486	Dec 2011	0.457	Dec 2012	-		0.457	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	St. Andrews Univ.:Scotland	0.270	0.264	Dec 2011	0.245	Dec 2012	-		0.245	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	CNAF:San Diego, CA	1.315	0.133	Nov 2011	0.133	Nov 2012	-		0.133	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	Bahamas Marine Mammal Research Organization (BMMRO:Bahamas)	-	0.140	Dec 2011	0.131	Dec 2012	-		0.131	Continuing	Continuing	Continuing
<b>Subtotal</b>			26.466	8.164		7.595		-		7.595			

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>				<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>				
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	26.466	8.164		7.595		-		7.595			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>
---	--	---

MARINE MAMMAL RESEARCH	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Marine Mammal Location, Abundance, and Movement																												
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound																												
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment																												
Empty grid for data entry																												

2013OSD - 0603721N - 9204

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603721N: <i>Environmental Protection</i>	<b>PROJECT</b> 9204: <i>Marine Mammal Research</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>MARINE MAMMAL RESEARCH</b>				
Marine Mammal Ecology and Population Dynamics	1	2011	4	2017
Criteria and Thresholds, Physiology and Behavior, and Effects of Sound	1	2011	4	2017
Mitigation Methodologies: Monitoring, New Technology, and Risk Assessment	1	2011	4	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	33.124	70.538	55.324	-	55.324	80.467	93.031	52.278	53.272	Continuing	Continuing
0829.: <i>ENERGY CONSERVATION (ADV)</i>	18.624	17.405	8.770	-	8.770	10.865	12.115	13.568	13.798	Continuing	Continuing
0838: <i>Mobility Fuels (ADV)</i>	10.520	15.888	11.071	-	11.071	15.397	14.537	12.004	12.280	Continuing	Continuing
0928: <i>Directed Energy Research</i>	-	13.404	16.243	-	16.243	15.890	19.482	2.869	2.930	Continuing	Continuing
0929: <i>Aircraft Energy Conservation</i>	-	23.841	-	-	-	-	-	-	-	0.000	23.841
0996: <i>Aircraft Energy Conservation</i>	-	-	19.240	-	19.240	38.315	46.897	23.837	24.264	Continuing	Continuing
9999: <i>Congressional Adds</i>	3.980	-	-	-	-	-	-	-	-	0.000	3.980

**A. Mission Description and Budget Item Justification**

This program supports projects to evaluate, adapt, and demonstrate energy related technologies for Navy aircraft and ship operations to: (a) increase fuel-related weapons systems capabilities such as range and time on station; (b) reduce energy costs; (c) apply energy technologies that improve environmental compliance; (d) relax restrictive fuel specification requirements to reduce cost and increase availability worldwide; (e) provide guidance to fleet operators for the safe use of commercial grade or off-specification fuels when military specification fuels are unavailable or in short supply; and (f) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems. This program supports the achievement of legislated, White House, Department of Defense, and Navy Energy Management Goals. It also responds to direction from the Office of the Secretary of Defense, the Secretary of the Navy, and the Chief of Naval Operations to make up-front investment in technologies that reduce future cost of operation and ownership of the fleet and supporting infrastructure.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>
---	---

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	30.403	70.538	67.267	-	67.267
Current President's Budget	33.124	70.538	55.324	-	55.324
Total Adjustments	2.721	-	-11.943	-	-11.943
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.104	-			
• Program Adjustments	-	-	-11.913	-	-11.913
• Rate/Misc Adjustments	-	-	-0.030	-	-0.030
• Congressional General Reductions Adjustments	-0.175	-	-	-	-
• Congressional Add Adjustments	4.000	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *Alt and Renew Energy Prog - Cong*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	<b>FY 2011</b>	<b>FY 2012</b>
	3.980	-
	3.980	-
	3.980	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule:

0829.S24 - Land Based Testing, Determine Fuel and Maintenance Saving, Shipboard Evaluation and Component Implementation schedules have all been delayed due to prototype development.



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>				<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0829.: <i>ENERGY CONSERVATION (ADV)</i>	18.624	17.405	8.770	-	8.770	10.865	12.115	13.568	13.798	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Energy Conservation Advanced Project is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. The aircraft energy conservation project identifies, evaluates, and implements energy savings initiatives for potential implementation into Naval aircraft. The objective of the project is to engage technical experts from across Naval aviation, industry, and academia to identify mature potential energy saving opportunities and determine the technical and fiscal viability of implementing them in existing aircraft platforms.

**A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:**

The Energy Conversation Advanced Project is designed to develop and implement energy and maintenance saving improvements into existing Fleet assets. This Fleet driven project, managed through NAVSEA 05Z, will identify mature potential energy saving and maintenance improvement areas, by involvement with Life-Cycle Managers (LCMs), NAVSEA Technical Warrant Holders, In-Service Engineering Agents (ISEAs), PEOs, TMA/TMI, Industry, and Academia. Potential technology target areas will include: Hull Hydrodynamics, Hull Husbandry, Heating, Ventilation & Air Conditioning (HVAC) Systems, Thermal Management, Propulsion Systems, Electrical Systems, and Power Generation and Storage systems. The project directly supports Fleet requirements to reduce energy consumption and lower maintenance costs. The project will focus on research and development across the following major areas: (U) Hull Hydrodynamic Sub Project - This project area will accomplish prototype development, modeling, laboratory and Fleet testing of ship modifications to propellers and/or hull appendages to determine overall mission and cost effectiveness of these improvements. (U) Hull Husbandry Sub Project - Project funds will be utilized to identify and evaluate new underwater hull coating systems and underwater hull cleaning and maintenance techniques both landbased and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency. (U) HVAC Sub Projects - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements. (U) Thermal Management Sub Project - Project funds will be utilized to identify and evaluate potential uses for Thermal Management techniques designed to reduce overall shipboard heat generation and reduce the overall need for HVAC. (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship propulsion system improvements, on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs and to develop a ship-wide monitoring system capable of conveying the power usage and operating conditions of numerous systems on the ship (U) Electrical Systems Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship electrical system improvements, to reduce overall fuel consumption and lower maintenance costs. (U) Power Generation & Storage System Project - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall effectiveness of these improvements. (U) Smart Voyage Planning (SVPDA)/ Fleet Scheduler - Analytic software tools for shore-side planning (1) to design ship voyage routes that minimize fuel usage using ship fuel curves, local weather, and ocean-current data, and (2) allow Fleet schedulers to develop mission plans for movement of Ships using minimized fuel usage as a primary focus, while (3) accounting for personnel and ship safety.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Aircraft Energy Conservation	12.560	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Articles:</b>		0		
<b>FY 2011 Accomplishments:</b> Completed evaluation of F414 engine efficiency technologies. Complete evaluation of drag-resistant aircraft coatings. Initiate feasibility of increased F/A-18 aircraft bring-back weight study. Evaluate advance engine efficiency technologies. Initiate air vehicle energy-saving technologies study. Upgrade mission planning modules.				
<b>Title:</b> Power Generation and Storage Project		0.202	2.119	1.854
<b>Articles:</b>		0	0	0
<b>Description:</b> Power Generation & Storage System Sub Project - This project area will accomplish prototype development, laboratory and Fleet testing to determine overall mission and cost effectiveness of these improvements.				
<b>FY 2011 Accomplishments:</b> Completed testing at vendor plant for ESM 600KW module and shipped unit to Land Based Test Site and making preparations for land based testing. Initiated planning efforts for shipboard demo in FY12 and coordinating project with various Technical Warrant Holders and senior leadership.				
<b>FY 2012 Plans:</b> Continue Land Based testing of ESM modules and conduct shipboard installation and test on a DDG ship to be determined (6 month evaluation) of 600KW Energy Storage Module (ESM) to demonstrate Single Generator Operations. Continue to identify new fuel saving technologies in Power Generation & Storage.				
<b>FY 2013 Plans:</b> Remove shipboard test unit from ship, analyze performance data, continue any additional land based testing required, prepare reports. Continue to identify new fuel saving technologies in Power Generation & Storage.				
<b>Title:</b> Hull Hydrodynamic Sub Project		0.900	2.900	1.000
<b>Articles:</b>		0	0	0
<b>Description:</b> (U) Hull Hydrodynamic Sub Project - This project area will accomplish prototype development, modeling, laboratory and Fleet testing of ship modifications to propellers and/or hull appendages to determine overall mission and cost effectiveness of these improvements.				
<b>FY 2011 Accomplishments:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Completed design, drawings and Ship Change document for installation of fin stabilizers on an LHD Class hull for test and evaluation. Ship installation moved to FY12 due to ship availability. Continue to identify additional fuel saving measures in Hull Hydrodynamics.</p> <p><b>FY 2012 Plans:</b> Continue advance planning efforts for installation of fins on LHD 1 Class ship during Dry-docking availability, initiate material procurement and fabrication, install fins during scheduled availability. Continue to identify additional fuel saving technologies in Hydrodynamic systems, prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.</p> <p><b>FY 2013 Plans:</b> Continue to identify additional fuel saving technologies in Hydrodynamic systems, prepare proposals and Business Case Analyses for promising technologies with potential to reduce fossil fuel consumption.</p>				
<p><b>Title:</b> Hull Husbandry Sub Project</p> <p><b>Articles:</b></p> <p><b>Description:</b> Hull Husbandry Sub Project - Project funds will be utilized to identify and evaluate new underwater hull coating systems and underwater hull cleaning and maintenance techniques both land based and shipboard to reduce hydrodynamic drag on the hull and thereby increase fuel efficiency.</p> <p><b>FY 2011 Accomplishments:</b> Continued evaluation and inspections of 3 ships coated with Foul Release coating aimed at decreasing fuel penalty associated with fouled hull/propellers. Conducted quarterly inspections/assessments. Report on propeller coating due out in Summer FY11 and for hull coating end of CY 12. Develop Business Case Analysis for propeller coating based on test results of coating and provide recommendations for fleet implementation. Continue to identify new fuel saving initiatives in Hull Husbandry.</p> <p><b>FY 2012 Plans:</b> Continue to utilize Ship Powering Condition Monitor (SPCM) to evaluate coating performance and energy savings. Develop Business Case Analysis for easy release hull coating based on test results of coating applications and continue development, test and evaluation of new fuel savings initiatives identified. Continue to identify new fuel saving initiatives in Hull Husbandry.</p> <p><b>FY 2013 Plans:</b> Continue to identify new fuel saving initiatives in Hull Husbandry.</p>		1.116 0	0.625 0	0.504 0
<p><b>Title:</b> Heating , Ventilation and Air Conditioning (HVAC) Sub Project</p> <p><b>Articles:</b></p>		2.702 0	1.350 0	1.705 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>		<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				<b>FY 2011</b>
<b>Description:</b> HVAC Sub Project - Project funds will be utilized to accomplish prototype development, land and shipboard testing to determine overall mission and cost effectiveness of these improvements.				<b>FY 2012</b>
<b>FY 2011 Accomplishments:</b> In accordance with (IAW) NAVSEA Prototype Planning Document (PPD) 802-8417916; complete fabrication of the High Efficiency Small Capacity (HES-C) prototype chiller and commence performance testing.				<b>FY 2013</b>
<b>FY 2012 Plans:</b> IAW NAVSEA PPD 802-8417916, continue fabrication of the HES-C prototype chiller and commence performance testing. Complete performance, acoustic, shock, vibration and Electro-magnetic Interference (EMI) testing of the HES-C prototype chiller. Coordinate technology implementation on DDG51-FLT-III; OHIO Replacement and VIRGINIA Bk-IV. Prepare Integrated Logistics Support(ILS) package including drawing and technical manual to support LPD17/DDG83AF backfit/demonstration. IAW NAVSEA PPD 802-8417916; design, fabricate, test and qualify the Variable Speed Drive (VSD) required for the HES-C chiller; otherwise VSD is programmed for DDG51-FLT-III in FY13. Evaluate Heating Ventilation and Air Conditioning systems of various classes of ships for efficiencies and installation of new digital thermostats for test and evaluation aimed at reducing ships energy consumption. Continue to identify additional fuel saving technologies in HVAC Systems.				
<b>FY 2013 Plans:</b> Shipboard AC plant are among the ships largest energy consumers and this will continue efforts to reduce energy consumption underway and shore side through improved operations and introduction of new technologies.				
<b>Title:</b> Thermal Management Sub Project				0.220
<b>Articles:</b>				0
<b>Description:</b> Thermal Management Sub Project - Project funds will be utilized to identify and evaluate potential uses for Thermal Management techniques designed to reduce overall shipboard heat generation and reduce the overall need for HVAC.				0.100
<b>FY 2011 Accomplishments:</b> Developed Business Case Analyses on most promising Thermal Management technologies identified and reviewed for shipboard installations. Continue to identify additional fuel saving technologies in Thermal Management.				0
<b>FY 2012 Plans:</b> Identify additional energy reducing/fuel saving technologies in thermal Management. Conduct Land Based / Model testing , develop design, prepare SCD (s) for new fuel saving initiatives identified in Thermal management technologies functional area. Continue to identify additional fuel saving technologies in Thermal Management.				
<b>Title:</b> Propulsion Systems Sub Project				0.550
				4.636
				3.070

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Articles:</b>		0	0	0
<p><b>Description:</b> (U) Propulsion Systems Sub Project - Project funds will be utilized to identify requirements and perform landbased and ship board testing of ship propulsion system improvements, on Gas Turbine, Steam, and Diesel Engine systems to reduce overall fuel consumption and lower maintenance costs and to develop a ship-wide monitoring system capable of conveying the power usage and operating conditions of numerous systems on the ship.</p> <p><b>FY 2011 Accomplishments:</b> Finished shipboard installation and evaluation of new fuel saving initiatives identified. Issued final report with findings and recommendations of On-Line Water Wash initiative. Evaluated Common Rail Technology for Ship Service Diesel Generator Sets on LSD-41/49 Class and prepared proposed effort for evaluation. Initiated efforts to develop shipboard energy dashboard as tool to enable ships personnel to view real-time energy usage while underway and in port. Continue to identify additional fuel saving technologies in Propulsion Systems.</p> <p><b>FY 2012 Plans:</b> Continue development of Common Rail Technology and development to of Shipboard energy Dashboard that captures existing shipboard equipment information related to fuel and electric power consumption for viewing on-board ship.</p> <p><b>FY 2013 Plans:</b> Install Common Rail Technology on LSD Class ship for evaluation and expand use of Shipboard energy dashboard to additional ships and shipboard systems.</p>				
<b>Title:</b> Electrical Systems SubProject		0.374	2.275	0.637
<b>Articles:</b>		0	0	0
<p><b>Description:</b> Electrical Systems Sub Project - Project funds will be utilized to identify and perform landbased and shipboard testing of ship electrical system improvements to reduce energy.</p> <p><b>FY 2011 Accomplishments:</b> Completed test and evaluation of SSL lighting on LSD41/49 Class test ship. Issue final report detailing test result findings and recommendations. Evaluated Maritime Apperage Suppression Technology (M.A.S.T.) System to conduct gas turbine generator amperage reduction. Investigated development of qualified Solid State Lighting (SSL) Technologies on DDG-51 Class to reduce overall electrical energy loads and therefore energy demand.</p> <p><b>FY 2012 Plans:</b></p>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p>Conduct shipboard installation, test and evaluation of SSL technology on DDG-51 Class. Continue to identify new fuel saving technologies in Electrical Systems.</p> <p><b>FY 2013 Plans:</b> Complete initiatives begun in FY 12 and prepared final reports with recommended actions. Continue to identify additional energy saving technologies and prepare business case analyses for review.</p>			
<p><b>Title:</b> Smart Voyage Planning Decision (SVPDA)</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> Provide tools to allow ship voyage planning.</p> <p><b>FY 2012 Plans:</b> Develop analytic software tools for shore-side planning (1) to design ship voyage routes that minimize fuel usage using ship fuel curves, local weather, and ocean-current data, and (2) allow Fleet schedulers to develop mission plans for movement of Ships using minimized fuel usage as a primary focus, while (3) accounting for personnel and ship safety.</p>	-	3.400 0	-
<b>Accomplishments/Planned Programs Subtotals</b>	18.624	17.405	8.770

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

N/A

**D. Acquisition Strategy**

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of Fleet fuel and maintenance savings. RDT&E Contracts are Competitive Procurements.

**E. Performance Metrics**

Actual performance of energy conservation initiatives are measured against initially projected fuel savings measured in barrels of fuel saved based on aircraft and ship demonstration testing.  
Quarterly Program Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Engineering Development	C/CPFF	TBD:TBD	10.560	-		-		-		-	0.000	10.560	10.560
Primary Hardware Development	WR	NSWC Carderock: Bethesda, MD	1.887	2.507	Oct 2011	1.200	Nov 2012	-		1.200	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC Carderock: Bethesda, MD	1.439	1.756	Oct 2011	1.070	Nov 2012	-		1.070	Continuing	Continuing	Continuing
Engineering Development	WR	NSWC Carderock: Bethesda, MD	2.404	1.955	Nov 2011	1.200	Nov 2012	-		1.200	Continuing	Continuing	Continuing
Demonstration & Evaluation	WR	NSWC Carderock: Bethesda, MD	2.575	2.198	May 2012	0.900	May 2013	-		0.900	Continuing	Continuing	Continuing
Primary Hardware Development-SVPDA	WR	NSWC Carderock: Bethesda, MD	-	1.200	Oct 2011	-		-		-	0.000	1.200	
Systems Engineering-SVPDA	WR	NSWC Carderock: Bethesda, MD	-	0.600	Oct 2011	-		-		-	0.000	0.600	
Engineering Development-SVPDA	WR	NSWC Carderock: Bethesda, MD	-	0.110	Nov 2011	-		-		-	0.000	0.110	
Demonstration & Evaluation-SVPDA	WR	NSWC Carderock: Bethesda, MD	-	0.870	May 2012	-		-		-	0.000	0.870	
<b>Subtotal</b>			18.865	11.196		4.370		-		4.370			

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>
---	---	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	NSWC Carderock: Bethesda, MD	-	0.200	Dec 2011	0.200	Nov 2012	-		0.200	Continuing	Continuing	Continuing
Software Support	WR	NSWC Carderock: Bethesda, MD	-	0.200	Dec 2011	0.100	Dec 2012	-		0.100	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NSWC Carderock: Bethesda, MD	-	0.300	Dec 2011	0.200	May 2013	-		0.200	Continuing	Continuing	Continuing
Study Analysis	WR	NSWC Carderock: Bethesda, MD	-	0.200	Apr 2012	0.200	Dec 2012	-		0.200	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	0.900		0.700		-		0.700			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NSWC Carderock: Bethesda, MD	2.728	1.698	Nov 2011	1.450	Jan 2013	-		1.450	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	NSWC Carderock: Bethesda, MD	1.280	1.748	Jan 2012	0.950	May 2013	-		0.950	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NSWC Carderock: Bethesda, MD	0.382	-		-		-		-	0.000	0.382	
Developmental Test & Evaluation-SVPDA	WR	NSWC Carderock: Bethesda, MD	-	0.060	Nov 2011	-		-		-	0.000	0.060	
<b>Subtotal</b>			4.390	3.506		2.400		-		2.400			





**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>
---	---	---

<b>ENERGY CONSERVATION (ADV)</b>	<b>FY 2011</b>				<b>FY 2012</b>				<b>FY 2013</b>				<b>FY 2014</b>				<b>FY 2015</b>				<b>FY 2016</b>				<b>FY 2017</b>			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Proposal Development - FY11				Proposal Development - FY12				Proposal Development - FY13				Proposal Development - FY14				Proposal Development - FY15				Proposal Development - FY16				Proposal Development - FY17			
													Proposal Acceptance															
													Model & Simulation (if required)															
													Prototype Development															
													Prototype Demo															
													Land Based Testing															
													Determine Fuel and Maintenance Savings															
													Shipboard Evaluation															
													Component Implementation Maintenance Savings															

2013OSD - 0603724N - 0829.S24

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0829.: <i>ENERGY CONSERVATION (ADV)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>ENERGY CONSERVATION (ADV)</b>				
Proposal Development - FY11	1	2011	3	2011
Proposal Development - FY12	1	2012	3	2012
Proposal Development - FY13	1	2013	3	2013
Proposal Development - FY14	1	2014	3	2014
Proposal Development - FY15	1	2015	3	2015
Proposal Development - FY16	1	2016	3	2016
Proposal Development - FY17	1	2017	3	2017
Proposal Acceptance	3	2011	3	2017
Model & Simulation (if required)	2	2011	4	2017
Prototype Development	1	2011	4	2017
Prototype Demo	1	2011	4	2017
Land Based Testing	2	2011	4	2017
Determine Fuel and Maintenance Savings	2	2011	4	2017
Shipboard Evaluation	2	2011	4	2017
Component Implementation Maintenance Savings	2	2011	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0838: <i>Mobility Fuels (ADV)</i>
---	---	---

COST (\$ in Millions)	FY 2011		FY 2012		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		Cost To Complete	Total Cost
	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost					
0838: <i>Mobility Fuels (ADV)</i>	10.520	15.888	11.071	-	11.071	15.397	14.537	12.004	12.280	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 data through laboratory, component, engine, fuel system, and weapon system tests, which relate the effects of changes in the Navy fuel procurement specification properties and chemistries to the performance and reliability of Naval ship, aircraft, and fuel distribution systems. The information is required to: (a) develop, validate, and execute the test protocols necessary to approve fuels from non-petroleum feedstocks, (b) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide, (c) provide guidance to fleet operators for the safe use of off-specification or commercial grade fuels when military specifications are unavailable or in short supply, (d) technically justify changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in fuel supply, and (e) improve capability to provide fuel quality surveillance in the field. Continued volatility and rapid escalation of the cost of fuel have placed additional pressures on Navy budgets responsible for maintaining and sustaining the Navy tactical fleet both now and in the future. These pressures have placed an added emphasis on the potential use of lower cost commercial fuels and/or fuels derived from non-petroleum sources as a potential means of stabilizing the current and anticipated price volatility. Recent problems with petroleum-based fuel quality have demonstrated the adverse effects that fuel-related problems can have on ship and aircraft system performance, reliability, and readiness. While the program impacts on readiness, additional maintenance costs, and the cost of lost equipment are often difficult to fully quantify, they are often many times the cost of this program. The potential risk of fuel-related problems over the next decade, given the unknown supply, feedstocks, environmental regulations, and the introduction of new theaters of operation, will continue to increase.

This project represents the Navy's only investment designed to maintain its capability to operate as a "smart" customer for fuels that cost over \$4.0B per year for procurement, transport, storage, and consumption, and are essential to fleet operations. Additionally, it is the Navy's only investment in the approval of alternative fuels for tactical applications and directly supports the Navy's energy goals of increased energy security and environmental stewardship.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Aircraft Fuels	4.192	-	-
<b>Articles:</b>	0		
<b>Description:</b> Perform development, test and evaluation work on Naval aircraft fuels to: a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; b) provide guidance and approval to fleet operators for the safe use of military aircraft that include new additives or are derived from non-petroleum sources; c) make needed periodic changes to the fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry and d) improve fleet methods to ensure fuel quality.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0838: <i>Mobility Fuels (ADV)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>FY 2011 Accomplishments:</b> Down-selected initial alternative fuel candidate and initiated testing to validate protocol. Continued development of dual compatible (ship and aircraft) lubricity improving additive.				
<b>Title:</b> Ship Fuels				
<b>Description:</b> Perform development, test, and evaluation work on Naval ship propulsion fuels to: a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; b) provide guidance to fleet operators for the safe use of off-specification or commercial grade fuels when military fuels are unavailable or in limited supply; and c) make needed periodic changes to fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry including fuel derived from non-petroleum sources.				
<b>FY 2011 Accomplishments:</b> Completed development of Navy protocol to evaluate and approve alternative fuels. Down selected initial alternative fuel candidate and initiated validation of evaluation and approval protocol. Transitioned shipboard sensor(s) to rapidly determine critical fuel properties. Continued development of dual compatible (ship and aircraft) lubricity improving additive.				
<b>Title:</b> Naval Tactical Fuels				
<b>Description:</b> Perform development, test and evaluation work on Naval tactical fuels to: a) determine the extent to which unnecessarily restrictive specification features can be relaxed to reduce cost and increase availability worldwide; b) provide guidance and approval to fleet operators for the safe use of military aircraft that include new additives or are derived from non-petroleum sources; c) make needed periodic changes to the fuel specifications to ensure fuel quality and avoid fleet operating problems while accommodating evolutionary changes in the fuel supply industry and d) improve fleet methods to ensure fuel quality.				
<b>FY 2012 Plans:</b> Complete propulsion and system testing of 50/50 bio-blend JP-5 and 50/50 bio-blend F-76. Initiate rig, laboratory and component testing on JP-5 and F-76 containing greater than 50% of bio-derived components. Revise aircraft, ship, and infrastructure alternative fuels protocols.				
<b>FY 2013 Plans:</b>				
	<b>Articles:</b>	6.328 0	-	-
	<b>Articles:</b>	-	15.888 0	11.071 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0838: <i>Mobility Fuels (ADV)</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Continue rig and propulsion system testing on aircraft and ship biofuels blends containing greater than 50% bio-derived components. Initiate ship and aircraft trials on biofuel blends containing greater than 50% bio-derived components. Initiate laboratory and rig testing on promising advanced biofuel production pathway fuels.			
<b>Accomplishments/Planned Programs Subtotals</b>	10.520	15.888	11.071

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

N/A

**D. Acquisition Strategy**

Alternative Fuel Efforts including testing and fuel procurement efforts in FY10-13 will be competitively contracted, and performed under Cost Plus Fixed Fee and Firm Fixed Price contracts.

**E. Performance Metrics**

Program will develop Alternate Fuel test and certification protocols for 100% of all Naval aircraft and ships. Program will evaluate biofuels, biofuel chemistry and components tests as defined in test and certification protocols.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0838: <i>Mobility Fuels (ADV)</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Systems Engineering	WR	NRL:Washington, D.C.	1.025	0.400	Nov 2011	0.500	Nov 2012	-		0.500	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Patuxent River, MD	5.182	1.400	Nov 2011	1.019	Nov 2012	-		1.019	Continuing	Continuing	Continuing
Engineering Development	C/CPFF	Various:Various	2.201	-		-		-		-	0.000	2.201	2.201
Systems Engineering	WR	NAVSUP Energy:Ft. Belvoir, VA	-	0.068	Nov 2011	0.100	Nov 2012	-		0.100	Continuing	Continuing	Continuing
Systems Engineering	WR	NAVSEA:Philadelphia, PA	-	0.140	Nov 2011	0.100	Nov 2012	-		0.100	Continuing	Continuing	Continuing
<b>Subtotal</b>			8.408	2.008		1.719		-		1.719			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	C/CPFF	Various:Various	7.511	-		-		-		-	0.000	7.511	7.511
Developmental Test & Evaluation	MIPR	Army Tank/Arm:Warren, MN	0.228	-		-		-		-	0.000	0.228	
Developmental Test & Evaluation	C/CPFF	Life Cycle Engineering:Charleston, SC	3.000	-		-		-		-	0.000	3.000	
Test Fuel	C/FFP	TBD:TBD	-	5.000	Mar 2012	1.720	Jan 2013	-		1.720	0.000	6.720	6.720
Hardware Testing	C/CPFF	Alion S&T:McLean, VA	-	2.000	Mar 2012	-		-		-	0.000	2.000	2.000
Hardware Testing	SS/CPFF	General Electric:Lynn, MA	-	1.500	May 2012	0.700	Mar 2013	-		0.700	0.000	2.200	2.200
Hardware Testing	SS/CPFF	Rolls Royce:Indianapolis, IN	-	2.000	May 2012	0.700	Mar 2013	-		0.700	0.000	2.700	2.700
Hardware Testing	C/CPFF	TBD:TBD	-	3.380	May 2012	2.000	May 2013	-		2.000	0.000	5.380	5.380
Hardware Testing	WR	NAWCAD:Patuxent River, MD	-	-		2.000	Jan 2013	-		2.000	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0838: <i>Mobility Fuels (ADV)</i>
---	---	---

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hardware Testing	C/CPFF	Life Cycle Engineering:Charleston, SC	-	-		1.552	Jan 2013	-		1.552	0.000	1.552	1.552
<b>Subtotal</b>			10.739	13.880		8.672		-		8.672			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	WR	Various:Various	5.690	-		-		-		-	0.000	5.690	
Program Management Support	MIPR	SRI:San Antonio, TX	0.696	-		-		-		-	0.000	0.696	
Program Management Support	WR	NAVSEA:Washington, DC	0.100	-		-		-		-	0.000	0.100	
Program Management Support	WR	NSWC:Philadelphia, PA	0.088	-		-		-		-	0.000	0.088	
DAWDF Realignment Issue 74408	TBD	Not Specified:Not Specified	0.008	-		-		-		-	0.000	0.008	
Program Management Support	WR	NAWCAD:Patuxent River, MD	-	-		0.680	Nov 2012	-		0.680	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.582	-		0.680		-		0.680			

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		25.729	15.888	11.071	-		11.071	

**Remarks**



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0838: <i>Mobility Fuels (ADV)</i>
---	---	---

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Mobility Fuels (ADV)</b>																												
A/C Fuels Alternative Fuel Evaluation/ Certification																												
A/C Fuels Sensor Development																												
A/C Fuels Advance Shipboard Compatible Performance Additive																												
Ship Fuels Alternative Fuel Evaluation/ Certification																												
Ship Fuels Sensor Development																												
Ship Fuels A/C & Ship Compatible Lubricity Additive Development																												
Alternative Fuel Evaluation/Certification																												
50/50 BioFuel Blend Hardware Testing																												
50/50 Ship/Aircraft Demonstrations																												
Green Carrier Strike Group Fleet Demonstration																												
Generation 2 Protocol Development																												
50% Bio Derived Lab/Hardware Testing																												
50% Bio Derived Ship/Aircraft Demonstrations																												
Advanced BioFuel Lab/Rig Testing																												
Advanced BioFuel Hardware Testing																												
Green Carrier Strike Group Sail																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0838: <i>Mobility Fuels (ADV)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Mobility Fuels (ADV)</i></b>				
A/C Fuels Alternative Fuel Evaluation/Certification	1	2011	4	2011
A/C Fuels Sensor Development	1	2011	2	2011
A/C Fuels Advance Shipboard Compatible Performance Additive	1	2011	4	2011
Ship Fuels Alternative Fuel Evaluation/Certification	1	2011	4	2011
Ship Fuels Sensor Development	1	2011	2	2011
Ship Fuels A/C & Ship Compatible Lubricity Additive Development	3	2011	4	2011
Alternative Fuel Evaluation/Certification	1	2012	4	2017
50/50 BioFuel Blend Hardware Testing	1	2012	2	2012
50/50 Ship/Aircraft Demonstrations	1	2012	2	2012
Green Carrier Strike Group Fleet Demonstration	1	2012	4	2012
Generation 2 Protocol Development	1	2012	4	2012
50% Bio Derived Lab/Hardware Testing	4	2012	3	2014
50% Bio Derived Ship/Aircraft Demonstrations	1	2015	4	2015
Advanced BioFuel Lab/Rig Testing	3	2013	4	2015
Advanced BioFuel Hardware Testing	1	2015	4	2017
Green Carrier Strike Group Sail	1	2015	4	2016

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0928: <i>Directed Energy Research</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0928: <i>Directed Energy Research</i>	-	13.404	16.243	-	16.243	15.890	19.482	2.869	2.930	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Legislation, Executive Orders (EO), and SECNAV Guidance direct DoN to reduce fossil fuel use and increase renewable energy use. This guidance includes the Energy Policy Act of 2005, which directs agencies to reduce energy intensity 30% by 2015, the National Defense Authorization Act of 2010, which directs DOD to source 25% of its energy from renewable sources by 2025, EO13514, which directs DOD to reduce greenhouse gas emissions by 2020, and SECNAV energy goals, which direct that 50% of DoN's energy come from alternative sources by 2020. Further, studies by the Defense Science Board and others have stressed the dangerous reliance of DOD on vulnerable grid power and unreliable imported oil. Currently, the Navy has limited options for producing energy from renewable sources. Private industry and other federal agencies are developing and testing new technologies. Renewable energy from Ocean Thermal Energy Conversion (OTEC), other ocean energy technologies such as wave, sea water air conditioning, tidal energy, outer continental shelf wind development, ammonia production and utilization, vortex induced vibration marine hydrokinetic, and compressed air storage for ocean energy, among other technologies have potential to alleviate current Navy island installation dependence on fossil fuel, at comparable costs to projected fossil energy sources. Also, advanced energy management systems have potential to increase installation energy security and enable broader use of renewable energy sources. Because of unique mission and aggressive time frames, testing and demonstration under Navy oversight would facilitate deployment throughout the DoN more quickly than a purely passive approach.

This Energy RDT&E Project will test, evaluate, and validate components as well as demonstrate cost-effective and technical viability of energy efficiency and renewable energy prototypes. All efforts will be coordinated across DOD and with other agencies as appropriate. Specifically, this project aims to pursue three areas of testing and evaluation: (A) Renewable Ocean Thermal Energy Conversion (OTEC) technology pilot testing: This project will perform an environmental baseline study, design engineering for a pilot plant, and combining the various OTEC components into a prototype design for potential deployment at Naval installations. It will also support feasibility evaluation, modeling and possible prototype testing of new energy sources for use at Naval installations of other ocean energy technologies with potential for widespread applicability to energy security and renewable energy requirements. Other renewable sources for evaluation, modeling and possible prototype testing could include energy storage (dead-ended fuel cell, zinc air battery, etc.), facility level concentrating solar power, next generation solar heat reflective film, plasma lighting for high wattage applications, micro-inverters for photo-voltaic storage, building level micro-grid, new generation waste heat capture, and other technologies; (B) It will support demonstration and validation of advanced electric grid management systems, known as "Smart Grid" technology, for use at Naval installations to enable improved energy security; (C) Demonstration and Validation of Alternative Energy, Energy Efficiency, Sustainable Building Features, and Smart Energy Management Technology: This project will support the testing, demonstration, validation, and application of innovative facility energy efficiency and alternative energy technology.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Directed Energy Research	-	13.404	16.243
<b>Articles:</b>		0	0
<b>FY 2012 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0928: <i>Directed Energy Research</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p>Initiate component testing and prototype development and deployment for alternative energy and advanced grid management technology at Naval Installations as follows:</p> <ul style="list-style-type: none"> <li>- Initiate evaluation of environmental impacts of ocean thermal, wave, and tidal energy generation prototypes</li> <li>- Initiate demonstration, testing, evaluation, and validation of ocean thermal energy generation components</li> <li>- Initiate demonstration, testing, deployment, and evaluation of advanced wave and tidal energy generation prototypes</li> <li>- Initiate demonstration, testing, deployment, and evaluation of advanced grid management technology at Naval installations</li> <li>- Initiate demonstration, testing, deployment, and evaluation of energy efficient and alternative energy technology innovations</li> </ul> <p><b><i>FY 2013 Plans:</i></b></p> <p>Initiate component testing and prototype development and deployment for alternative energy and advanced grid management technology at Naval installations as follows:</p> <ul style="list-style-type: none"> <li>- Continue evaluation of environmental impacts of ocean and tidal energy generation renewable,</li> <li>- Continue demonstration, testing, evaluation, and validation of ocean renewable energy generation components and prototypes,</li> <li>- Continue evaluation, demonstration, testing and validation of OTEC, outer continental shelf wind, photovoltaic, ocean compressed air storage and other promising technologies,</li> <li>- Initiate demonstration, testing, deployment, and evaluation of smart energy management technology,</li> <li>- Continue demonstration and validation of mature technologies to be transitioned such as advanced lightning, sustainable building technologies, solar PV collection technologies and improved energy storage systems at Naval installations</li> </ul>			
<b>Accomplishments/Planned Programs Subtotals</b>	-	13.404	16.243

**C. Other Program Funding Summary (\$ in Millions)**  
N/A

**D. Acquisition Strategy**  
Demonstration and validation are conducted for maximum transfer and interaction with industry such as to influence the industry COTS with the results of this demonstration and prototype validation. Acquisition is based on performance specifications enabled by this project.

**E. Performance Metrics**  
The program will be coordinated across DOD and with other agencies as appropriate to achieve 30% Energy Intensity Reduction by FY2015 and 25% Renewable Energy Increase by 2025.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0928: <i>Directed Energy Research</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Renewable Energy	Various	NFESC:Port Hueneme, CA	-	11.854	Jan 2012	15.243	Jul 2013	-		15.243	Continuing	Continuing	Continuing
Smart Energy	Various	NFESC and NDW:Washington, DC	-	0.550	Apr 2012	-		-		-	Continuing	Continuing	Continuing
Demonstration/Validation	Various	NFESC:Port Hueneme, CA	-	1.000	Jun 2012	1.000	Apr 2013	-		1.000	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	13.404		16.243		-		16.243			

**Remarks**

(FY2012) The Navy Energy Program will be assessing multiple technologies for energy efficiency and energy reduction. This technology assessment continues throughout the program life. As these technologies are assessed, there will be a requirement for a concept of how the technologies may be successfully employed by the Navy. These, too, will continue throughout the program life. For renewable technologies such as ocean waste heat capture, lighting, photovoltaic, wind and battery support to net-zero grids, Smart Energy, and other technologies, there will be a requirement for component design, testing, evaluation, and validation. This demonstration, testing and validation are expected to result in completed tests, the milestones occurring in 3QFY12 and 3QFY13. For Ocean Thermal Energy Conversion (OTEC), completion of the design of an environmentally acceptable, scalable pilot prototype test facility design is planned in the FY12/FY13 timeframe. Assuming the development of a environmentally feasible design, construction would be planned beginning in the FY13-FY15 timeframe. Throughout the testing and evaluation period, deliverables will be required at the end of each FY for completed designs, component test results, validated components, and pilot prototype design and testing. Other renewable technologies mentioned herein will have a similar level of rigor applied.

(FY2013) The Navy Energy Program will be assessing multiple technologies for energy efficiency and energy reduction. This technology assessment continues throughout the program life. As these technologies are assessed, they will be incorporated individually into the shore installation by Energy Savings Performance Contract vehicles, and globally by changes to design and construction criteria coordinated across the services. These, too, will continue throughout the program life. For OTEC, Smart Energy, and select other technologies, there will be a requirement for component testing and validation. Testing and validation are expected to result in completed tests for the milestones occurring in 3QFY13. In FY12, the OTEC pilot plant plan includes operation and demonstration in the FY15/FY16 timeframe, resulting in development of test and evaluation results and lessons learned by the end of FY16. At the end of the demonstration and evaluation phase, it is expected that feasibility determinations for a larger, commercial scale and OTEC plant will be made. This will be followed by criteria development to transition the technical aspects required to acquire a full scale plant targeted to support one of several island bases. Throughout the testing and evaluation period, deliverables will be required at the end of each FY for component test results, validated components, and pilot prototype design and testing.

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	13.404	16.243	-	16.243			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0928: <i>Directed Energy Research</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b>Renewable Energy</b>																												
Technology Assessment																												
Concept of Employment																												
Prototype Construction																												
Demonstration																												
<b>Smart Energy</b>																												
Technology Evaluation																												
<b>Demonstration/Validation</b>																												
Phase I																												
Phase II																												
Phase III																												
Phase IV																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0928: <i>Directed Energy Research</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Renewable Energy</b>				
Technology Assessment	2	2012	4	2016
Concept of Employment	2	2012	4	2016
Prototype Construction	3	2013	4	2014
Demonstration	4	2013	4	2015
<b>Smart Energy</b>				
Technology Evaluation	3	2012	4	2013
<b>Demonstration/Validation</b>				
Phase I	3	2012	2	2013
Phase II	3	2013	2	2014
Phase III	3	2014	2	2015
Phase IV	3	2015	2	2016

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0929: <i>Aircraft Energy Conservation</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0929: <i>Aircraft Energy Conservation</i>	-	23.841	-	-	-	-	-	-	-	0.000	23.841
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Aircraft Energy Conservation program is designed to develop and implement energy and maintenance saving improvements into existing fleet assets. The program identifies, evaluates, and implements energy savings initiatives for potential implementation into Naval aircraft. The objective of the program is to engage technical experts from across Naval aviation, industry, and academia to identify mature potential energy saving opportunities and determine the technical and fiscal viability of implementing them in existing aircraft platforms.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Aircraft Energy Conservation	-	23.841	-
<b>Articles:</b>		0	
<b>FY 2012 Plans:</b> Complete F/A-18 bring-back weight study. Conduct advanced engine efficiency technology demonstration. Conduct field trial of drag-resistant aircraft coatings. Implement fleet i-ENCON (Energy Conservation) program. Complete air vehicle energy savings technology study.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	23.841	-

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

N/A

**D. Acquisition Strategy**

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of fleet fuel and maintenance savings.

**E. Performance Metrics**

Actual performance of energy conservation initiatives are measured against initially projected fuel savings measured in barrels of fuel saved based on aircraft demonstration testing.



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0929: <i>Aircraft Energy Conservation</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD:Patuxent River, MD	-	2.300	Nov 2011	-		-		-	0.000	2.300	2.300
<b>Subtotal</b>			-	2.300		-		-		-	0.000	2.300	2.300

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	Boeing:St. Louis, MO	-	4.000	Mar 2012	-		-		-	0.000	4.000	4.000
Hardware Testing	C/CPFF	PWA:Hartford, CT	-	12.000	Mar 2012	-		-		-	0.000	12.000	12.000
Hardware Testing	WR	NAWCAD:Patuxent River, MD	-	0.600	Nov 2011	-		-		-	0.000	0.600	0.600
Hardware Testing	TBD	Various:Various	-	2.000	May 2012	-		-		-	0.000	2.000	2.000
<b>Subtotal</b>			-	18.600		-		-		-	0.000	18.600	18.600

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Patuxent River, MD	-	0.027	Nov 2011	-		-		-	0.000	0.027	0.027
Engine Efficiency Evaluations	C/CPFF	TBD:TBD	-	1.485	May 2012	-		-		-	0.000	1.485	1.485
Air Vehicle Energy Efficiency Evaluations	C/CPFF	TBD:TBD	-	1.429	May 2012	-		-		-	0.000	1.429	1.429
<b>Subtotal</b>			-	2.941		-		-		-	0.000	2.941	2.941

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	23.841		-		-		-	0.000	23.841	23.841

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy DATE: February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0929: <i>Aircraft Energy Conservation</i>
---	---	---

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
--	------------------------	---------	--------------	-------------	---------------	------------------	------------	--------------------------

Remarks

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0929: <i>Aircraft Energy Conservation</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<b><i>Aircraft Energy Conservation</i></b>																												
Aircraft Energy Conservation																												
F414 Engine Efficiency																												
Aircraft Drag Reducing																												
F/A-18 Bring-Back Weight Study																												
Air ENCON Program																												
Air Vehicle Energy Efficiency RDT&E																												
Engine Efficiency RDT&E																												
Mission Planning Module Upgrades																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0929: <i>Aircraft Energy Conservation</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Aircraft Energy Conservation</i></b>				
Aircraft Energy Conservation	1	2012	4	2012
F414 Engine Efficiency	1	2012	2	2012
Aircraft Drag Reducing	1	2012	4	2012
F/A-18 Bring-Back Weight Study	1	2012	4	2012
Air ENCON Program	1	2012	4	2012
Air Vehicle Energy Efficiency RDT&E	1	2012	4	2012
Engine Efficiency RDT&E	1	2012	4	2012
Mission Planning Module Upgrades	1	2012	4	2012

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0996: <i>Aircraft Energy Conservation</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0996: <i>Aircraft Energy Conservation</i>	-	-	19.240	-	19.240	38.315	46.897	23.837	24.264	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Aircraft Energy Conservation program is designed to develop and implement energy and maintenance saving improvements into existing fleet assets. The program identifies, evaluates, and implements energy savings initiatives for potential implementation into Naval aircraft. The objective of the program is to engage technical experts from across Naval aviation, industry, and academia to identify mature potential energy saving opportunities and determine the technical and fiscal viability of implementing them in existing aircraft platforms.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Aircraft Energy Conservation	-	-	19.240
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Continue fleet energy conservation program. Continue drag-resistant aircraft coating trial. Develop F135 engine efficiency technology. Initiate F-35 air vehicle energy efficiency technology development program.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	19.240

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

N/A

**D. Acquisition Strategy**

This is a non-acquisition program that develops, evaluates, and validates mature technologies in support of fleet fuel and maintenance savings.

**E. Performance Metrics**

Actual performance of energy conservation initiatives are measured against initially projected fuel savings measured in barrels of fuel saved based on aircraft demonstration testing.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0996: <i>Aircraft Energy Conservation</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD:Patuxent River, MD	-	-		1.540	Nov 2012	-		1.540	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Lockheed Martin:Fort Worth, TX	-	-		1.000	Mar 2013	-		1.000	0.000	1.000	1.000
Systems Engineering	TBD	Various:Various	-	-		1.190	Mar 2013	-		1.190	0.000	1.190	1.200
<b>Subtotal</b>			-	-		3.730		-		3.730			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Testing	C/CPFF	PWA:Hartford, CT	-	-		13.400	Mar 2013	-		13.400	0.000	13.400	13.400
Hardware Testing	WR	NAWCAD:Patuxent River, MD	-	-		0.600	Jan 2013	-		0.600	Continuing	Continuing	Continuing
Hardware Testing	TBD	Various:Various	-	-		1.000	May 2013	-		1.000	0.000	1.000	1.000
<b>Subtotal</b>			-	-		15.000		-		15.000			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Patuxent River, MD	-	-		0.510	Nov 2012	-		0.510	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		0.510		-		0.510			

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			-	-		19.240		-		19.240			

**Remarks**



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 0996: <i>Aircraft Energy Conservation</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0996</b>				
Aircraft Energy Conservation: Aircraft Energy Conservation	1	2013	3	2015
Aircraft Energy Conservation: Aircraft Drag Reducing	1	2013	4	2013
Aircraft Energy Conservation: F/A-18 Bring-Back Weight Study	1	2013	3	2013
Aircraft Energy Conservation: Air ENCON Program	1	2013	4	2017
Aircraft Energy Conservation: Air Vehicle Energy Efficiency RDT&E	1	2013	4	2017
Aircraft Energy Conservation: Engine Efficiency RDT&E	1	2013	4	2017
Aircraft Energy Conservation: Mission Planning Upgrades	1	2013	2	2013



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603724N: <i>Navy Energy Program</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	3.980	-	-	-	-	-	-	-	-	0.000	3.980
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Congressional Add.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2011	FY 2012
<b><i>Congressional Add:</i></b> Alt and Renew Energy Prog - Cong	3.980	-
<b><i>FY 2011 Accomplishments:</i></b> N/A		
<b>Congressional Adds Subtotals</b>	3.980	-

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

N/A

**D. Acquisition Strategy**

Not required for Congressional Add.

**E. Performance Metrics**

Not required for Congressional Add.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	3.727	3.754	3.401	-	3.401	3.435	3.467	3.517	4.029	Continuing	Continuing
0995: <i>Naval Facilities System</i>	1.775	1.772	1.409	-	1.409	1.412	1.418	1.437	1.907	Continuing	Continuing
3155: <i>Force Protection Ashore</i>	1.952	1.982	1.992	-	1.992	2.023	2.049	2.080	2.122	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program provides for capabilities to: a) overcome performance limitations and reduce the life cycle cost of shore facilities and, b) provide protection against terrorist attacks for shore installations and their operations. The program focuses on technical and operational issues of specific Navy interest, where there are no unbiased test validated Commercial Off the Shelf (COTS) solutions available, and where timely capabilities may not materialize without specific demonstration or validation by the Navy. Additionally, the program completes the development of technologies originating from Navy, DOD and other sources of Science and Technology programs, including the National Science Foundation (NSF), the National Institute of Standards and Technology (NIST) and Department of Energy (DOE). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Facilities, Sustainment Restoration and Modernization (FSRM) program, and Antiterrorism and Force Protection (ATFP) Other Procurement, Navy (OP,N) program.

Project 0995 addresses the following Navy facilities requirements during FY 2011 through FY 2017: Advance Technology for Waterfront Facilities Repair and Enhancements, Facilities Technologies to Reduce the Cost of Facilities Sustainment, Restoration and Modernization for reducing the total ownership cost (TOC) of future and existing Facilities and addressing seismic risk of Naval Waterfront Facilities. This project is consistent with recommendations of two National Academy of Sciences Reports: "The Role of Federal Agencies in Fostering New Technology and Innovation in Building" and "Federal Policies to Foster Innovation and Improvement in Constructed Facilities."

Started in FY2006 the Force Protection Ashore Project 3155 addresses selective topics in modeling, and material technologies to reduce the vulnerability of installations; and reduce the acquisition and operating costs of protective technologies. The demonstrations and validations provide the independent, technical and operational test data for the development of competitive performance specifications to acquire the required capabilities. The ATFP project is coordinated with other DOD programs.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>				
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603725N: <i>Facilities Improvement</i>				
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>					

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	3.746	3.754	3.792	-	3.792
Current President's Budget	3.727	3.754	3.401	-	3.401
Total Adjustments	-0.019	-	-0.391	-	-0.391
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-0.379	-	-0.379
• Rate/Misc Adjustments	-	-	-0.012	-	-0.012
• Congressional General Reductions Adjustments	-0.019	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0995: <i>Naval Facilities System</i>	1.775	1.772	1.409	-	1.409	1.412	1.418	1.437	1.907	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program provides the Navy with new engineering capabilities that are required to overcome specific performance limitations of Naval shore facilities while reducing the cost of sustaining the Naval shore infrastructure. The program focuses available RDT&E resources on satisfying facility requirements where the Navy is a major stakeholder or where there are no test validated Commercial Off the Shelf (COTS) solutions available, and a timely solution will not emerge without a Navy sponsored demonstration and validation. The program completes the development and validation of facility technologies originating in Navy science and technology programs, plus a variety of other sources which includes the National Science Foundation (NSF) and the National Institute of Standards and Technology (NIST). Validated technologies are implemented in the Navy's Military Construction (MILCON) and Facilities Sustainment Restoration and Modernization Programs (FSRP). The Duncan Hunter National Defense Authorization Act of 2009 laid down very specific guidelines for the correction of corrosion deficiencies in DoD shore facilities which is estimated to be \$1.9B (DOD Annual Cost of Corrosion for the Department of Defense Facilities and Infrastructure July 2010).

Project 0995 addresses two Navy facilities requirements: 1) waterfront facilities repair, upgrade and service life extension; and, 2) validation testing/performance monitoring of vertical take-off and landing (VTOL) pads for JSF (F-35B), testing and evaluation of the performance of alternative materials, and surfacing concepts, and, methods and corrosion technologies to reduce the cost of Facilities, Sustainment, Restoration and Modernization (FSRM).

Waterfront facilities, repair, upgrade and service life extension:

An urgent requirement exists for early identification of strategies and solution recommendations for Seismic Risk at Naval Facilities, and especially nuclear capable waterfront facilities. Recent Pacific Rim earthquakes have heightened anxiety levels on perceived huge risks to Navy waterfront facilities in the region. The sub-project will provide analysis and solution recommendations for facilities impacted by seismic risk. Waterfront facilities repair and upgrade: About 75% of the Navy's waterfront facilities are over 45 years old. They were designed for a service life of 25 years and to satisfy the mission requirements existing at that time. The over aged reinforced concrete requires costly and repetitive repairs. In addition, to accomplish more pier side ship maintenance and thus reduce dry dock costs, these piers must be strengthened to support concentrated crane loads up to 140 tons when piers were originally designed for no concentrated loads. At the time piers were designed to service one, possibly two particular ship classes, berthing flexibility is now limited by mooring and utility arrangements. This sub-project addresses new materials design methods, and retrofit methods to extend the service life of existing waterfront facilities by an additional 15 or more years. The project also addresses updating the mission based service, environmental, and protection loading requirements imposed by changes in platforms, operations and threats. Other initiatives include: leveraging Building Information Modeling (BIM) technology to provide for enhanced facilities management processes and waterfront utilities service enhancements using models to achieve flexible berthing arrangements consistent with current and future platform mooring configurations and hotel service requirements including Facilities and Infrastructure Integrated Logistics Support for ACAT Programs.

Technologies to reduce the cost of Facilities Sustainment Restoration and Modernization (FSRP):

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

Technologies to reduce the cost of FSRM: SRM issues of high operational significance are addressed on a priority basis. The Navy portion of corrosion deficiencies in DoD shore facilities is estimated to be \$433M (DOD Annual Cost of Corrosion for the Department of Defense Facilities and Infrastructure July 2010). Current Navy FSRM funding levels are insufficient to prevent the continued growth of the backlog of mission and safety critical maintenance and repairs. This effort will demonstrate and validate the cost and reliability of advanced corrosion technologies in order to assure their acceptance and implementation in traditionally conservative public works and construction industries. The effort will accelerate the validation, commercialization, and wide-spread implementation of the facility corrosion technologies urgently required to reduce the cost of correcting the deficiencies in the Navy FSRM backlog. Estimated returns on these investments are better than 60 to 1. The sub-project includes the continuing effort to validate, test and conduct performance monitoring of vertical take-off and landing (VTOL) pads for JSF (F-35B).

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Naval Facilities System</p> <p><b>FY 2011 Accomplishments:</b> Waterfront Facilities Repair &amp; Upgrade: Support and manage the advanced nuclear capable dry-dock seismic analysis standard procedure as a pilot definition for the analysis of 26 additional Navy dry-docks, including nuclear capable facilities, requiring analysis to meet NAVSEA MILSTD 1625 MILITARY STANDARD: SAFETY CERTIFICATION PROGRAM (SCP) FOR DRYDOCKING FACILITIES AND SHIPBUILDING WAYS FOR US NAVY SHIPS. Providing new analysis methods for, developing and populating the unclassified 3D ship model repository to improve fleet support for the standardization, utilization and sustainment of facilities data sets from planning (integrated logistics support (ILS)) to facility design to facility demolition consistent with Building Information Management (BIM) and Modeling processes. This will establish data interoperability with business processes in the Capital Improvements Business Line (CIBL) to ensure that efficiencies are realized. The immediate result of this effort has had a direct positive impact on support to NAVSEA05 and current ACAT programs.</p> <p>Facilities, Sustainment, Restoration, &amp; Modernization: Continue validation testing/performance monitoring of vertical take-off and landing (VTOL) pads for JSF (F-35B). Test and evaluate performance of alternative materials, and surfacing concepts and methods. Conduct field (validation) testing of high temperature resistant pavement joint sealants. Evaluate possible solutions and develop associated design and construction criteria to support the transition of new technologies associated with weapons system introduction into the shore facilities infrastructure. Focus in this area is to address lowest Total Ownership Cost (TOC), sustainable operations and capturing best practice technologies to facilitate successful operations of the weapons platforms and existing infrastructures. Continue corrosion prevention and control projects and sustainability engineering and maintenance research: accelerated weathering of organic materials, enhanced guidelines for marine concrete repairs, electrochemical chloride extraction of reinforced concrete during repair of waterfront structures materials, crack resistant durable repair material, pipeline repair technology for fuel pipelines and criticacl utilities on the underside of Navy piers, and thermally insulating coatings. Investigating solutions for enhanced and more timely response to contingency operations and post-disaster situations for Naval Installations with improved assessment, data collection, diagnostics and communications to assure more efficient/effective response. Projects</p>	<p>1.775</p> <p>0</p>	<p>1.772</p> <p>0</p>	<p>1.409</p> <p>0</p>
<b>Articles:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>		<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				<b>FY 2011</b>
<p>for lowest total ownership costs for hangar unmanned electronics system, sustainable engineering design and mobile condition assessment projects are proceeding.</p> <p>Complete work begun on Modular Hybrid Pier (MHP) cost estimate, 35% design and final report funded in FY2010. MHP project costs estimate and final report developed in FY2011.</p> <p><b>FY 2012 Plans:</b> Waterfront Facilities Repair &amp; Upgrade: Aggressively pursuing dry-dock and waterfront seismic analysis and standard seismic risk mitigation procedures pilot definition for the analysis of 26 Navy dry-docks (including nuclear capable facilities, requiring analysis to meet NAVSEA MILSTD 1625 MILITARY STANDARD: SAFETY CERTIFICATION PROGRAM (SCP) FOR DRYDOCKING FACILITIES AND SHIPBUILDING WAYS FOR US NAVY SHIPS requirements and broader risk issues caused by recent Pacific Rim seismic events. Provide evaluation and proposed solutions for CVN Dredge Depth (re-evaluation of under keel clearance requirements), and Tsunami evaluation of Japanese ports that accommodate CVNs and submarines.</p> <p>Provide for the standardization, utilization and sustainment of facilities data sets from planning (ILS) to facility design to facility demolition consistent with Building Information Management and Modeling processes and establish data interoperability with business processes to ensure that efficiencies are realized between NAVFAC Business Lines in support of the Fleet, CNIC and other NAVFAC Supported Commanders. Continue to leverage BIM best practices for reduction of TOC on shore infrastructure in support of ACAT and ILS/ILA (Independent Logistic Assessments) programs.</p> <p>Facilities, Sustainment, Restoration &amp; Modernization: Continue validation testing/performance monitoring of vertical take-off and landing (VTOL) pads for JSF (F-35B). Test and evaluate performance of alternative materials, and surfacing concepts and methods. Conduct field (validation) testing of high temperature resistant pavement joint sealants. Continue Corrosion Prevention &amp; Control projects and complete Sustainability Engineering and Maintenance Research. Continue evaluation of solutions to develop associated design and construction criteria to support the transition of new technologies associated with weapons system introduction into the shore facilities infrastructure. Complete FY2011 funded projects for lowest total ownership costs for hangar unmanned electronics system and mobile condition assessment projects are proceeding.</p> <p><b>FY 2013 Plans:</b> Waterfront Facilities Repair &amp; Upgrade: Continuing the analysis and solution set development for dry-dock and waterfront seismic analysis and standard seismic risk mitigation procedures pilot for the analysis of 26 Navy dry-docks, including nuclear capable facilities, requiring analysis to meet NAVSEA MILSTD 1625 MILITARY STANDARD: SAFETY CERTIFICATION PROGRAM (SCP) FOR DRYDOCKING FACILITIES AND SHIPBUILDING WAYS FOR US NAVY SHIPS requirements and broader risk issues caused by recent Pacific Rim seismic events. Continue to evaluate proposed solutions for CVN Dredge Depth (re-evaluation of under keel clearance requirement), and Tsunami evaluation of Japanese ports that accommodate CVNs and</p>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
submarines. Continue to leverage BIM best practices for reduction of TOC on shore infrastructure in support of ACAT and ILS/ILA programs.			
Facilities, Sustainment, Restoration & Modernization: Continue validation testing/performance monitoring of vertical take-off and landing (VTOL) pads for JSF (F-35B). Test and evaluate performance of alternative materials, and surfacing concepts and methods. Conduct field (validation) testing of high temperature resistant pavement joint sealants. Continue Corrosion Prevention & Control projects and Sustainability Engineering and Maintenance Research. Continue evaluation of solutions to develop associated design and construction criteria to support the transition of new technologies associated with weapons system introduction into the shore facilities infrastructure.			
<b>Accomplishments/Planned Programs Subtotals</b>	1.775	1.772	1.409

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

N/A

**D. Acquisition Strategy**

The Projects identified in this budget have been carefully selected to respond to both the facilities support for new Weapons Systems Acquisition Category Programs, to address TOC considerations of an evolving and aging infrastructure, and to facilitate rational risk based decisions and solutions to protect and decrease risk levels for seismically impacted facilities. Each project has been assessed to ensure that it is addressing legitimate risks and requirements of the shore establishment. The results of these projects will be the development of design and construction criteria and or components that directly impact the shore facilities and the weapons systems supported.

**E. Performance Metrics**

Quarterly Program Reviews are conducted with Performers are conducted to include funds status discussion, schedule review, assessment of plan to actual, and review of accomplishments and issues to date.



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Waterfront Facilities Repair & Upgrade	WR	NFESC:Pt Hueneme, CA	2.525	0.972	Oct 2011	0.714	Oct 2012	-		0.714	Continuing	Continuing	Continuing
Facilities, Sustainment, Restoration and Modernization	WR	NFESC:Pt Hueneme, CA	6.073	0.800	Oct 2011	0.695	Oct 2012	-		0.695	Continuing	Continuing	Continuing
Modular Hybrid Pier	WR	NFESC:Pt Hueneme, CA	5.478	-		-		-		-	0.000	5.478	
<b>Subtotal</b>			14.076	1.772		1.409		-		1.409			

**Remarks**  
Remarks:

	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	14.076	1.772		1.409		-		1.409			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

Modular Hybrid Pier	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Modular Hybrid Pier																																

2013DON - 0603725N - 0995

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

Facilities, Sustainment, Restoration & Moderization Tech	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017													
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q										
Facilities, Sustainment, Restoration & Moderization Tech																																						
Joint Strike Fighter Pavement Development																																						
Corrosion Prevention Control																																						
Investigate Best Practice Solutions for Post Diaster Analysis and Recovery																																						
Determine Lowest TOC for Hanger Electronics System																																						

2013DON - 0603725N - 0995

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

Waterfront Facilities Repair & Upgrade	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Waterfront Facilities Repair & Upgrade																												
Waterfront IPT - Seismic Design Criteria																												
Drydock Seismic Analysis Procedures																												
Determine Reduction in TOC for Waterfront Facilities via Information Management Policies and Process																												

2013DON - 0603725N - 0995

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 0995: <i>Naval Facilities System</i>
---	--	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Modular Hybrid Pier</i></b>				
Modular Hybrid Pier	1	2011	4	2011
<b><i>Facilities, Sustainment, Restoration &amp; Moderization Tech</i></b>				
Facilities, Sustainment, Restoration & Moderization Tech	1	2011	4	2017
Joint Strike Fighter Pavement Development	1	2011	4	2013
Corrosion Prevention Control	1	2011	4	2017
Investigate Best Practice Solutions for Post Diaster Analysis and Recovery	2	2011	4	2012
Determine Lowest TOC for Hanger Electronics System	2	2011	4	2012
<b><i>Waterfront Facilities Repair &amp; Upgrade</i></b>				
Waterfront Facilities Repair & Upgrade	1	2011	4	2017
Waterfront IPT - Seismic Design Criteria	1	2011	4	2017
Drydock Seismic Analysis Procedures	2	2011	4	2017
Determine Reduction in TOC for Waterfront Facilities via Information Management Policies and Processes	2	2011	4	2013

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>				<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
3155: <i>Force Protection Ashore</i>	1.952	1.982	1.992	-	1.992	2.023	2.049	2.080	2.122	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Protection of the Navy Installations against terrorist activities requires deployment of advanced technology for force protection capabilities. This antiterrorism and force protection ashore project will develop, demonstrate and validate technologies for the following: access control and perimeter denial; waterside protection against craft and swimmer intrusion; secure and efficient operations centers and emergency centers (including human and information support systems); construction integrated surveillance sensors and robotic systems for intruder detection; material systems to improve utilities security and recovery; and material concepts. Program currently being evaluated are the inclement weather sensors for detecting intruders, intelligent video (VEW Maritime) in waterside security systems and over-the-water analytics, Command, Control, and Communications (C3) capabilities for emergency operations, and identifying and interdicting malevolent threats - watercraft, swimmers, divers, unmanned underwater vessels (UUVs) to reduce injury and death to the war fighter.

Through demonstration and validation of risk modeling and simulation models, the potential of emerging technologies will be evaluated and installation security strategies that reduce manpower and other costs will be formulated.

Installation protection concepts against attacks from the air will be identified and jointly demonstrated. These demonstrations and validations derive from advanced technology from science and technology programs of government academia and industry. The technology produces data for performance specifications for competitive procurement.

All work will be coordinated with other programs and through industry forums as appropriate.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Force Protection Ashore	1.952	1.982	1.992
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
Continue, complete, and initiate advanced prototype development and demonstrations as follows:			
- Complete demonstration and validation of counter surveillance and malevolent intent detection in existing ATRFP surveillance systems, including WiFi integration.			
- Complete advanced C3 development and demonstration for mobile operations and system interoperability at ATRFP Installations.			
- Complete integration and initial demonstration of counter surveillance and malevolent intent detection capabilities in existing surveillance systems at Naval Installations.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<ul style="list-style-type: none"> <li>- Initiate IP-enabled WAAN development, integration, and demonstration for Navy and Joint Bases for early warning from remote Command &amp; Control Centers.</li> </ul> <p><b><i>FY 2012 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Continue demonstration and validation of waterside identification and interdiction capabilities for swimmers, divers, and watercraft.</li> <li>- Begin integration and demonstration of Automated Sensor Assessment and Course of Action Planning (COAP) Test &amp; Evaluation (DT/OT) for EHSS.</li> <li>- Complete enhancements and DT/OT of advanced C3 prototypes during AT and Hurricane Exercise (HUREX) operational exercises for Joint Interoperability and Advanced Emergency Mobile Communications.</li> <li>- Complete IP-enabled WAAN DT/OT at operational Navy Installation with various COTS Vendors for Joint Interoperability and Advanced Emergency Mobile Communications.</li> <li>.</li> </ul> <p><b><i>FY 2013 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Continue integration and demonstration of Automated Sensor Assessment and Course of Action Planning (COAP) (OT) and centralized Sensor Monitoring Center.</li> <li>- Continue integration and validation of advanced beyond swimmers/diver detection, tracking, and interdiction capabilities into EHSS.</li> <li>- Initiate advanced integrated waterside threat protection surface/subsurface defense capability development, integration and evaluation.</li> </ul>				
<b>Accomplishments/Planned Programs Subtotals</b>		1.952	1.982	1.992
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>D. Acquisition Strategy</b>				
Demonstration and validation is conducted for maximum transfer and interaction with industry such as to influence the industry COTS with the results of this demonstration and prototype validation. Acquisition is based on performance specifications enabled by this project.				
<b>E. Performance Metrics</b>				
Quarterly Program Reviews to include funds status, schedule review and assessment of plan to actual.				

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Force Protection Ashore (CA)	WR	NFESC:Pt Hueneme, CA	1.610	-		-		-		-	0.000	1.610	
Force Protection Ashore (Crane)	WR	NSWC Dahlgren:Panama City, Crane	2.581	-		-		-		-	0.000	2.581	
Force Protection Ashore (VA)	WR	ONR:Arlington, VA	0.300	-		-		-		-	0.000	0.300	
Waterside Intelligent: Operational Test & Evaluation	WR	SPAWAR:San Diego, CA	0.205	-		-		-		-	Continuing	Continuing	Continuing
Waterside Intelligent Video: Percurement Specification	WR	SPAWAR:San Diego, CA	0.060	-		-		-		-	Continuing	Continuing	Continuing
Waterbourne Vessel Microwave Interdiction: Technology Assessment	WR	SPAWAR:San Diego, CA	0.105	-		-		-		-	Continuing	Continuing	Continuing
Waterbourne Vessel Michrowave Interdidtion: Concept of Employment	WR	SPAWAR:San Diego, CA	0.105	-		-		-		-	Continuing	Continuing	Continuing
Joint Interoperability and Advanced Emergency Mobile Comm: Spiral Development (TF&I9)	WR	SPAWAR:San Diego, CA	0.205	-		-		-		-	Continuing	Continuing	Continuing
Joint Interoperability and Advanced Emergency Mobile Comm: Deevopmental Test & Evaluation	WR	SPAWAR:San Diego, CA	0.205	-		-		-		-	Continuing	Continuing	Continuing
Joint Interoperability and Advanced Emergency Mobile Comm: Oerational Test & Evaluation	WR	SPAWAR:San Diego, CA	-	0.216	Oct 2011	-		-		-	Continuing	Continuing	Continuing
Swimmer/Divr Interdiction: Technology Assessment	WR	SPAWAR:San Diego, CA	0.195	-		-		-		-	Continuing	Continuing	Continuing
Swimmer/Divr Interdiction: Concept of Employment	WR	SPAWAR:San Diego, CA	0.205	-		-		-		-	Continuing	Continuing	Continuing



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Swimmer/Divr Interdiction: Spiral Development (LPN)	WR	SPAWAR:San Diego, CA	0.205	-		-		-		-	Continuing	Continuing	Continuing
Swimmer/Divr Interdiction: Spiral Development (TF&I9)	WR	SPAWAR:San Diego, CA	-	0.299	Oct 2011	0.264	Oct 2012	-		0.264	Continuing	Continuing	Continuing
Swimmer/Divr Interdiction: Developmental Test & Evaluation	WR	SPAWAR:San Diego, CA	-	0.316	Oct 2011	0.331	Oct 2012	-		0.331	Continuing	Continuing	Continuing
Swimmer/Divr Interdiction: Operational Test & Evaluation	WR	SPAWAR:San Diego, CA	-	0.315	Oct 2011	0.311	Oct 2012	-		0.311	Continuing	Continuing	Continuing
Swimmer/Divr Interdiction: Procurement Specification	WR	SPAWAR:San Diego, CA	-	0.085	Oct 2011	0.086	Oct 2012	-		0.086	Continuing	Continuing	Continuing
Surveillance/Counter-Surveillance: Procurement Specification	WR	NSWC:Panama City, FL	-	0.050	Oct 2011	-		-		-	Continuing	Continuing	Continuing
Automated Sensor Assessment and Course of Action: Technology Assessment	WR	SPAWAR:San Diego, CA	0.105	-		-		-		-	Continuing	Continuing	Continuing
Automated Sensor Assessment and Course of Action: Concept of Employment	WR	SPAWAR:San Diego, CA	0.105	-		-		-		-	Continuing	Continuing	Continuing
Automated Sensor Assessment and Course of Action:Spiral Development (LPN)	WR	SPAWAR:San Diego, CA	-	0.315	Oct 2011	0.258	Oct 2012	-		0.258	Continuing	Continuing	Continuing
Automated Sensor Assessment and Course of Action: Spiral Development (TF&I9)	WR	SPAWAR:San Diego, CA	-	0.306	Oct 2011	0.296	Oct 2012	-		0.296	Continuing	Continuing	Continuing
Inclement Weather Sensor System (mid range IR):Procurement Specification	WR	NSWC:Panama City, FL	0.052	-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			6.243	1.902		1.546		-		1.546			



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--

Waterside Intelligent Video	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
					Test & Evaluation (DT)																								
						Test & Evaluation (OT)																							
							Procurement Specification																						

2013DON - 0603725N - 3155

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--

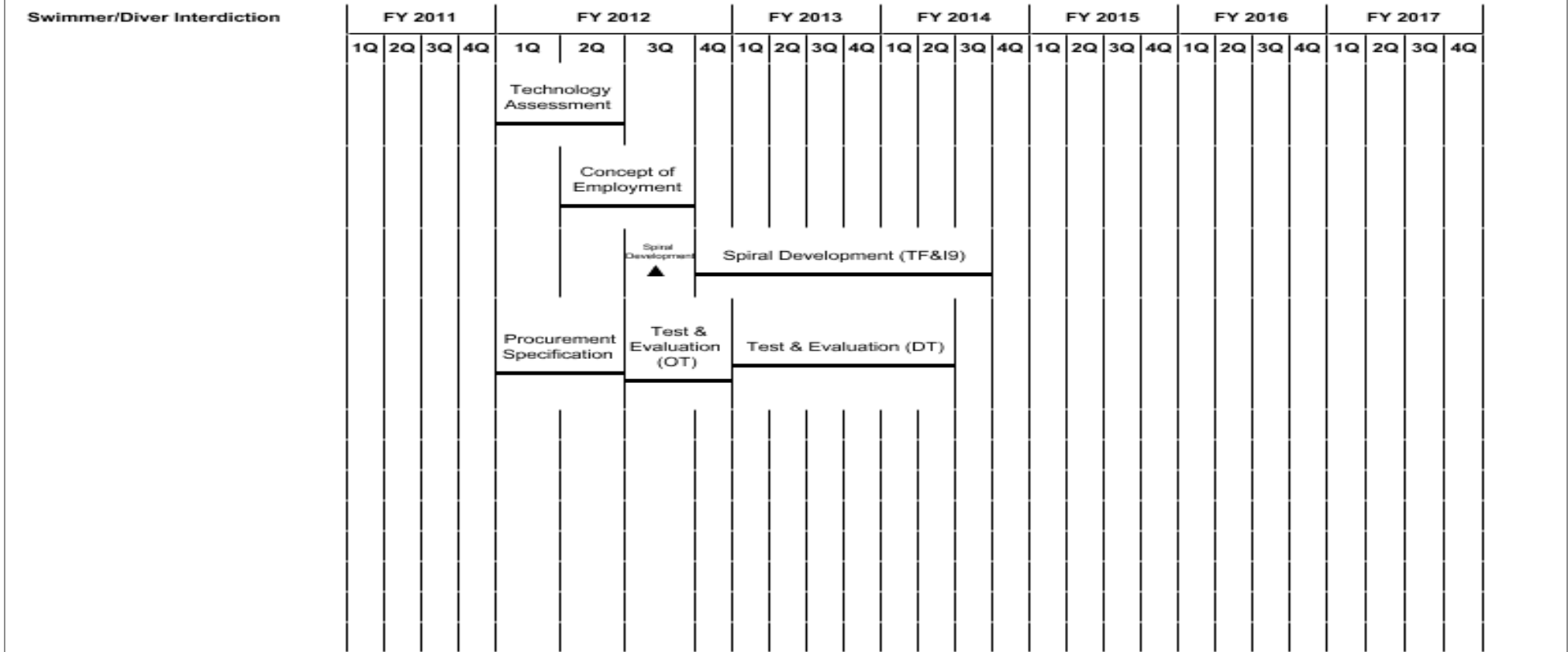
<b>Joint Interoperability and Advanced Emergency Mobile Communications</b>	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Spiral Development (LPR)		Spiral Development (TF&I9)																									
			Test & Evaluation (DT)		Test & Evaluation (OT)																							
					Procurement Specification																							

2013DON - 0603725N - 3155

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--



2013DON - 0603725N - 3155

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>

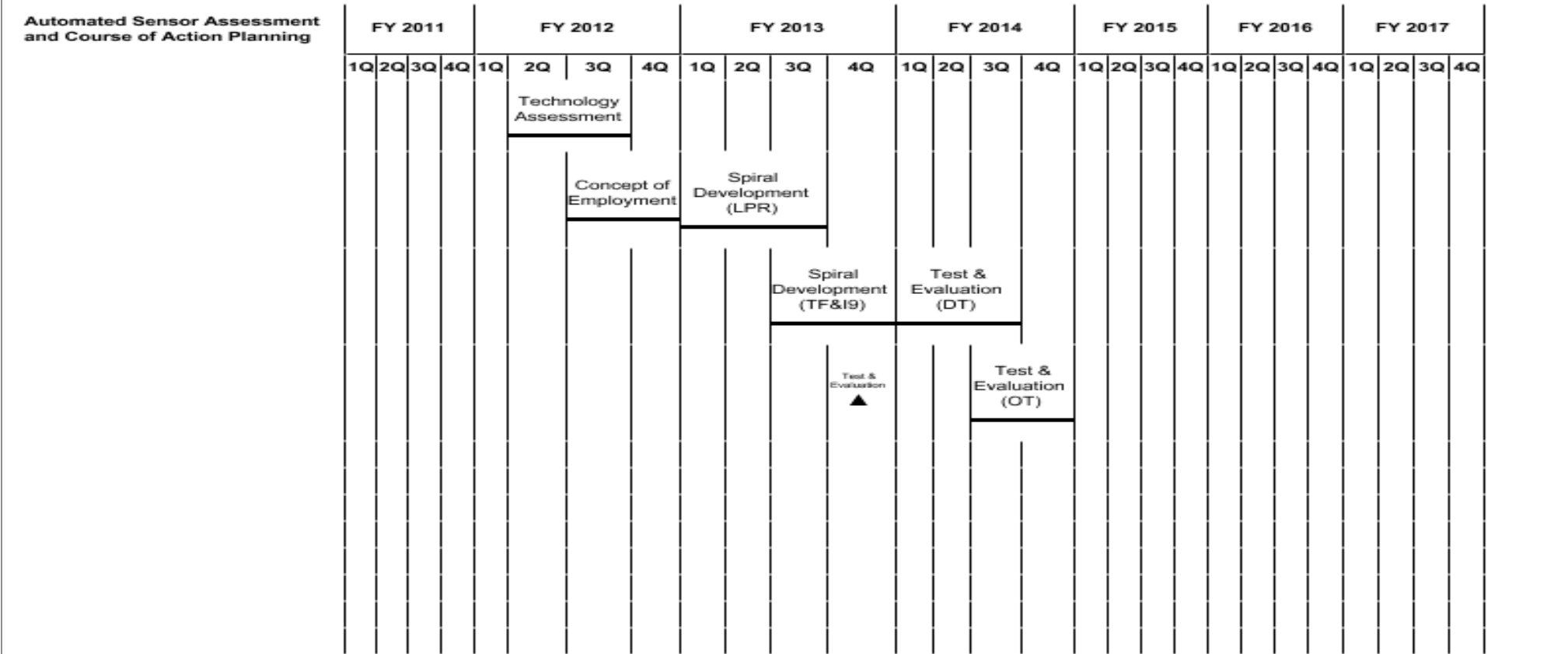
Surveillance/Counter-Surveillance	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
	Spiral Development ▲	Spiral Development (DT)																											
			Spiral Development (OT)																										
				Procurement Specification																									

2013DON - 0603725N - 3155

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--



2013DON - 0603725N - 3155

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--

Increment Weather Sensor System (mid range IR)	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Procurement Specif ▲																																

2013DON - 0603725N - 3155



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Waterside Intelligent Video</i></b>				
Subproj: Waterside Intelligent Video: Test & Evaluation (DT)	1	2012	1	2012
Subproj: Waterside Intelligent video: Test & Evaluation (OT)	2	2012	3	2012
Subproj: Waterside Intelligent video: Procurement Specification	3	2012	4	2012
<b><i>Joint Interoperability and Advanced Emergency Mobile Communications</i></b>				
Subproj: Joint Interoperability and Advanced Emergency Mobile Communications: Spiral Development (LPR)	1	2011	1	2011
Subproj: Joint Interoperability and Advanced Emergency Mobile Communications:Spiral Development (TF&I9)	2	2011	3	2011
Subproj: Joint Interoperability and Advanced Emergency Mobile Communications:Test & Evaluation (DT)	3	2011	4	2011
Subproj: Joint Interoperability and Advanced Emergency Mobile Communications:Test & Evaluation (OT)	1	2012	2	2012
Subproj: Joint Interoperability and Advanced Emergency Mobile Communications:Procurement Specification	2	2012	3	2012
<b><i>Swimmer/Diver Interdiction</i></b>				
Subproj: :Swimmer/Diver Interdiction Technology Assessment	1	2012	2	2012
Subproj: Swimmer/Diver Interdiction: Concept of Employment	2	2012	3	2012
Subproj: Swimmer/Diver Interdiction: Spiral Development (LPR)	3	2012	3	2012
Subproj: Swimmer/Diver Interdiction: Spiral Development (TF&I9)	4	2012	3	2014
Subproj: Swimmer/Diver Interdiction: Test & Evaluation (DT)	1	2013	2	2014
Subproj: Swimmer/Diver Interdiction: Test & Evaluation (OT)	3	2012	4	2012
Subproj: Swimmer/Diver Interdiction: Procurement Specification	1	2012	2	2012

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603725N: <i>Facilities Improvement</i>	<b>PROJECT</b> 3155: <i>Force Protection Ashore</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Surveillance/Counter-Surveillance</i></b>				
Subproj: Surveillance/Counter-Surveillance: Spiral Development (TF&I9)	1	2011	1	2011
Subproj: Surveillance/Counter-Surveillance: Spiral Development (DT)	2	2011	4	2011
Subproj: Surveillance/Counter-Surveillance: Spiral Development (OT)	4	2011	1	2012
Subproj: Surveillance/Counter-Surveillance: Procurement Specification	1	2012	2	2012
<b><i>Automated Sensor Assessment and Course of Action Planning</i></b>				
Subproj: Automated Sensor Assessment and Course of Action Planning: Technology Assessment	2	2012	3	2012
Subproj: Automated Sensor Assessment and Course of Action Planning: Concept of Employment	3	2012	4	2012
Subproj: Automated Sensor Assessment and Course of Action Planning: Spiral Development (LPR)	1	2013	3	2013
Subproj: Automated Sensor Assessment and Course of Action Planning: Spiral Development (TF&I9)	3	2013	4	2013
Subproj: Automated Sensor Assessment and Course of Action Planning: Test & Evaluation (DT)	1	2014	3	2014
Subproj: Automated Sensor Assessment and Course of Action Planning: Test & Evaluation (OT)	3	2014	4	2014
Subproj: Automated Sensor Assessment and Course of Action Planning: Procurement Specification	4	2013	4	2013
<b><i>Inclement Weather Sensor System (mid range IR)</i></b>				
Subproj: Inclement Weather Sensor System (mid range IR): Procurement Specification	1	2011	1	2011

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603734N: (U)CHALK CORAL
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	70.284	79.415	45.966	-	45.966	49.104	47.016	43.726	42.195	Continuing	Continuing
1804: <i>Chalk Coral</i>	70.284	79.415	45.966	-	45.966	49.104	47.016	43.726	42.195	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	71.920	79.415	81.051	-	81.051
Current President's Budget	70.284	79.415	45.966	-	45.966
Total Adjustments	-1.636	-	-35.085	-	-35.085
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.260	-			
• SBIR/STTR Transfer	-1.007	-			
• Program Adjustments	-	-	-35.089	-	-35.089
• Rate/Misc Adjustments	-	-	0.004	-	0.004
• Congressional General Reductions Adjustments	-0.369	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603734N: (U)CHALK CORAL	<b>PROJECT</b> 1804: <i>Chalk Coral</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1804: <i>Chalk Coral</i>	70.284	79.415	45.966	-	45.966	49.104	47.016	43.726	42.195	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Chalk Coral	70.284	79.415	45.966
<b>Articles:</b>	0	0	0
<b>Description:</b> N/A			
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	70.284	79.415	45.966

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	4.009	4.137	3.811	-	3.811	3.847	3.874	3.900	3.968	Continuing	Continuing
2955: <i>JEDMICS</i>	2.776	2.847	2.887	-	2.887	2.899	2.962	2.972	3.024	Continuing	Continuing
3223: <i>Logistics R&amp;D</i>	0.857	0.926	0.924	-	0.924	0.948	0.912	0.928	0.944	Continuing	Continuing
3225: <i>Ordnance PHST</i>	0.376	0.364	-	-	-	-	-	-	-	0.000	0.740

**A. Mission Description and Budget Item Justification**

Includes development and evaluation of incentive systems for improving the productivity of civilian and military personnel. Identifies barriers to increased productivity and evaluates the effect of removing them. Develops techniques for easing the introduction of new technology to the work place. Identifies and evaluates methods for improving the quality of work-life.

Excludes civilian and military manpower and their related costs and military construction costs which are included in appropriate Management and Support elements in this program.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	4.139	4.137	3.817	-	3.817
Current President's Budget	4.009	4.137	3.811	-	3.811
Total Adjustments	-0.130	-	-0.006	-	-0.006
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.108	-			
• Program Adjustments	-	-	-0.006	-	-0.006
• Rate/Misc Adjustments	-	-	-	-	-
• Congressional General Reductions Adjustments	-0.022	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**  
1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
PE 0603739N: *Navy Logistic Productivity*

Schedule: Project Unit 2955 Joint Engineering Data Management Information & Control System has achieved Milestone C within the Program's current life-cycle. The Program is now completing development and modernization efforts using software releases to achieve an annual system Initial Operating Capability.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2955: <i>JEDMICS</i>	2.776	2.847	2.887	-	2.887	2.899	2.962	2.972	3.024	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

In FY85 Congress directed the Services and Defense Logistics Agency to permanently capture, manage and control engineering data in digital format so it would be available to support competitive spares re-procurement. The Joint Engineering Data Management Information & Control System (JEDMICS) program manages and controls 106,000,000 engineering images and has 25,000 authorized users responsible for over 70,000 user sessions per month. Over 2.5 million digital images are retrieved each month. New data and new users are added each month as DoD re-engineers its business processes to take advantage of digital data that is managed and controlled for corporate reuse. The JEDMICS system is deployed at 7 interoperable sites that service 600 locations worldwide. Data stored in JEDMICS is used for Logistics Support, Spares re-procurement, Weapons Systems procurement, Engineering, Maintenance, Distribution, Manufacturing, Air National Guard and Deployed Engineering Technical Services organizations. JEDMICS facilitates work process re-design since it brings the electronic drawings to the desktop, shop floor or flight line in real time eliminating walk, wait and slack time to retrieve drawings. Additionally, Administrative Lead Time, Repair Turn Around Time, Engineering Change Proposal processing time, demilitarization time, and all cycle times dependent on engineering data have decreased with the real time availability of digital engineering data. JEDMICS also facilitates Electronic Commerce since it produces digital technical data packages that can be forwarded along with an electronic order. Funds are for Commercial Off The Shelf (COTS) test, evaluation and integration. JEDMICS development efforts are required to integrate and test COTS upgrades.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> JEDMICS Development	2.701	2.776	2.819
<b>Articles:</b>	0	0	0
<b>Description:</b> Conduct development efforts associated with JEDMICS software releases. Conduct COTS requirements definition, evaluation, integration and testing of annual baseline releases. Conduct technology insertion of the JEDMICS system that is required to protect the \$21B digital data asset managed in JEDMICS.			
These annual releases are necessary to incorporate changes that are essential to keeping the system running within the Navy's Enterprise. They include Service mandated Information Technology changes, storage capability increases for emerging engineering data formats, changes to accommodate commercial hardware and software end-of-life product obsolescence, and defenses for newly recognized Information Assurance vulnerabilities affecting the systems various software applications.			
<b>FY 2011 Accomplishments:</b> Develop and integrate JEDMICS Software Release 3.12.			
<b>FY 2012 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Develop and integrate Joint Engineering Data Management Information & Control System (JEDMICS) Software Release 3.13. <b>FY 2013 Plans:</b> Develop and integrate JEDMICS Software Release 3.14.				
<b>Title:</b> JEDMICS Test <b>Articles:</b>		0.025 0	0.025 0	0.025 0
<b>Description:</b> Conduct test and readiness reviews and functional performance tests on JEDMICS system. <b>FY 2011 Accomplishments:</b> Complete Developmental Test (DT) of JEDMICS Software Release 3.11. Initiate DT of JEDMICS Software Release 3.12. <b>FY 2012 Plans:</b> Complete DT of JEDMICS Software Release 3.12. Initiate DT of JEDMICS Software Release 3.13. <b>FY 2013 Plans:</b> Complete DT of JEDMICS Software Release 3.13. Initiate DT of JEDMICS Software Release 3.14.				
<b>Title:</b> JEDMICS Evaluation & Review <b>Articles:</b>		0.050 0	0.046 0	0.043 0
<b>Description:</b> Conduct technical evaluations and configuration control reviews of JEDMICS system. <b>FY 2011 Accomplishments:</b> Conduct technical evaluations and reviews for JEDMICS Software Release 3.13. <b>FY 2012 Plans:</b> Conduct technical evaluations and reviews for JEDMICS Software Release 3.14. <b>FY 2013 Plans:</b> Conduct technical evaluations and reviews for JEDMICS Software Release 3.15.				
<b>Accomplishments/Planned Programs Subtotals</b>		2.776	2.847	2.887
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>

**D. Acquisition Strategy**

Execution of sole-source negotiated requirements type contract for engineering, design, development and test efforts. Performance-based reviews conducted quarterly by the Project Management Office.

**E. Performance Metrics**

1. Complete testing, integration, & upgrade of three major embedded Commercial Off-the-Shelf products.
2. Test & integrate system Information Assurance Vulnerability Management software patch upgrades four times.
3. Complete development, testing, & integration of a minimum twenty corrected high-priority software problem reports.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>
---	--	--

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Development Support	C/IDIQ	Wyle Laboratories, Inc:Huntsville, AL	0.592	0.157	Oct 2011	0.159	Oct 2012	-		0.159	Continuing	Continuing	Continuing
Software Development	SS/T&M	Northrop Grumman Information:McLean, VA	25.124	2.619	Nov 2011	2.660	Nov 2012	-		2.660	Continuing	Continuing	Continuing
Prior Year Support no Longer Funded in Budget Year or Out years	Various	Various:Various	0.216	-		-		-		-	0.000	0.216	
<b>Subtotal</b>			25.932	2.776		2.819		-		2.819			

**Remarks**  
Remarks: Funds are for development efforts associated with Commercial Off The Shelf (COTS) obsolescence on the fully deployed COTS Intensive Joint Engineering Data Management Information & Control System. Funds are for COTS evaluation, integration, and test and evaluation. The common baseline will be maintained and obsolete COTS software and hardware will be replaced. Baseline releases will protect joint interoperability, upgrade operating systems for security patches and supportable versions, support integration to replace obsolete COTS, and upgrade the Oracle database to supportable versions.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	MIPR	WR-ALC/TILAB:Robins AFB, GA	2.420	0.025	Oct 2011	0.025	Oct 2012	-		0.025	Continuing	Continuing	Continuing
<b>Subtotal</b>			2.420	0.025		0.025		-		0.025			

**Remarks**  
Supports testing and evaluation of baseline releases in a user environment.

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management Support	WR	Naval Air Warfare Center:NAS Patuxent River, MD	0.224	0.014	Oct 2011	0.015	Oct 2012	-		0.015	Continuing	Continuing	Continuing

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>
---	--	--

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various:Various	0.222	0.032	Jul 2012	0.028	Jul 2013	-		0.028	Continuing	Continuing	Continuing
Prior Year Mgmt no Longer Funded in Budget Year or Out years	Various	Various:Various	1.083	-		-		-		-	0.000	1.083	
<b>Subtotal</b>			1.529	0.046		0.043		-		0.043			

**Remarks**  
Supports program compliance reviews and program related travel by government employees.

	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	29.881	2.847		2.887		-		2.887			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>
---	--	--

JEDMICS	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
<b>Aquisition Milestones</b>																																
IOC		▲				▲				▲				▲				▲				▲				▲				▲		
Requirements: Service IPT/ECPs				▼				▼				▼				▼				▼				▼				▼				▼
Contract Award	●				●				●				●				●				●				●				●			
Software & Hardware Evaluation/Integration	Release 3.12				Release 3.13				Release 3.14				Release 3.15				Release 3.16				Release 3.17				Release 3.18							
<b>Test &amp; Evaluation Milestones</b>																																
Risk Assessment			■				■				■				■				■				■				■				■	
Developmental/Functional Testing				■				■				■				■				■				■				■				■
Alpha/Beta Testing	■				■				■				■				■				■				■				■			
<b>Deliveries</b>																																
Engineering Change Package		▼				▼				▼				▼				▼				▼				▼				▼		

2013OSD - 0603739N - 2955

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>JEDMICS</b>				
Aquisition Milestones: IOC: IOC Release 3.11	2	2011	2	2011
Aquisition Milestones: IOC: IOC Release 3.12	2	2012	2	2012
Aquisition Milestones: IOC: IOC Release 3.13	2	2013	2	2013
Aquisition Milestones: IOC: IOC Release 3.14	2	2014	2	2014
Aquisition Milestones: IOC: IOC Release 3.15	2	2015	2	2015
Aquisition Milestones: IOC: IOC Release 3.16	2	2016	2	2016
Aquisition Milestones: IOC: IOC Release 3.17	2	2017	2	2017
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.13	4	2011	4	2011
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.14	4	2012	4	2012
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.15	4	2013	4	2013
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.16	4	2014	4	2014
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.17	4	2015	4	2015
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.18	4	2016	4	2016
Aquisition Milestones: Requirements: Service IPT/ECPs: Service IPT/ECPs Release 3.19	4	2017	4	2017
Aquisition Milestones: Contract Award: 2011 Contract Award	1	2011	1	2011
Aquisition Milestones: Contract Award: 2012 Contract Award	1	2012	1	2012

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>
---	--	--

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Aquisition Milestones: Contract Award: 2013 Contract Award	1	2013	1	2013
Aquisition Milestones: Contract Award: 2014 Contract Award	1	2014	1	2014
Aquisition Milestones: Contract Award: 2015 Contract Award	1	2015	1	2015
Aquisition Milestones: Contract Award: 2016 Contract Award	1	2016	1	2016
Aquisition Milestones: Contract Award: 2017 Contract Award	1	2017	1	2017
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.12	1	2011	3	2011
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.13	1	2012	3	2012
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.14	1	2013	3	2013
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.15	1	2014	3	2014
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.16	1	2015	3	2015
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.17	1	2016	3	2016
Aquisition Milestones: Software & Hardware Evaluation/Integration: Software Hardware Evaluation/Integration Release 3.18	1	2017	3	2017
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.12	3	2011	3	2011
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.13	3	2012	3	2012
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.14	3	2013	3	2013
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.15	3	2014	3	2014
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.16	3	2015	3	2015
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.17	3	2016	3	2016
Test & Evaluation Milestones: Risk Assesment: Risk Assessment Release 3.18	3	2017	3	2017

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>
---	--	--

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/Functional Testing Release 3.12	4	2011	4	2011
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/Functional Testing Release 3.13	4	2012	4	2012
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/Functional Testing Release 3.14	4	2013	4	2013
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/Functional Testing Release 3.15	4	2014	4	2014
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/Functional Testing Release 3.16	4	2015	4	2015
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/Functional Testing Release 3.17	4	2016	4	2016
Test & Evaluation Milestones: Developmental/Functional Testing: Developmental/Functional Testing Release 3.18	4	2017	4	2017
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.11	1	2011	1	2011
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.12	4	2011	1	2012
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.13	4	2012	1	2013
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.14	4	2013	1	2014
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.15	4	2014	1	2015
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.16	4	2015	1	2016
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.17	4	2016	1	2017
Test & Evaluation Milestones: Alpha/Beta Testing: Alpha/Beta Testing Release 3.18	4	2017	4	2017
Deliveries: Engineering Change Package: Engineering Change Package Release 3.11	2	2011	2	2011
Deliveries: Engineering Change Package: Engineering Change Package Release 3.12	2	2012	2	2012
Deliveries: Engineering Change Package: Engineering Change Package Release 3.13	2	2013	2	2013
Deliveries: Engineering Change Package: Engineering Change Package Release 3.14	2	2014	2	2014
Deliveries: Engineering Change Package: Engineering Change Package Release 3.15	2	2015	2	2015

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 2955: <i>JEDMICS</i>
---	--	--

<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Deliveries: Engineering Change Package: Engineering Change Package Release 3.16	2	2016	2	2016
Deliveries: Engineering Change Package: Engineering Change Package Release 3.17	2	2017	2	2017



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 3223: <i>Logistics R&amp;D</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3223: <i>Logistics R&amp;D</i>	0.857	0.926	0.924	-	0.924	0.948	0.912	0.928	0.944	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Stable annual funding is required to facilitate implementation and execution of a robust, flexible Logistics R&D program that will provide the means for Naval Supply Systems Command (NAVSUP) to effectively pursue solutions to mission-related capability/technology gaps. The NAVSUP Logistics R&D program has an established infrastructure and business process for ensuring that R&D funds are applied to projects that address high priority enterprise needs established in accordance with OPNAV goals and the NAVSUP Commander's Guidance.

From a process perspective, Log R&D investments are governed by a NAVSUP enterprise-wide Executive Steering Group (ESG) chaired by the NAVSUP Vice Commander, and comprised of SES and Command leadership representatives. The ESG ratifies capability/technology gaps identified by all activities within the enterprise, and then assesses and prioritizes all proposed Log R&D initiatives in accordance with their potential for filling the established gap and generating return on investment.

The established Log R&D business management process has currently identified capability/technology gaps in the following general areas: 1) the need to develop technology enhancements promoting the movement of shipboard supply operations ashore, especially as it relates to optimally manned ships, 2) developing and/or modernizing shipboard equipment, material or processes for which NAVSUP exercises Technical Authority, 3) developing and modernizing Information Technology (IT) and Automatic Identification Technology (AIT) applications to enhance performance of supply chain management and logistics functions (e.g., remote diagnostics/prognostics, in-transit visibility, unique item identification) that are not supported by Navy ERP, and 4) collaborating with acquisition program managers to reduce total ownership costs. This modest R&D investment will establish a NAVSUP Logistics R&D Program to explore additional technologies and significantly increase potential cost savings.

Examples of specific issues/projects that are under consideration for investment of Log R&D funding as a result of the FY10 NAVSUP capability gap and initiative review include: Automated inventory management system; Shipboard ozone laundering; Improved general purpose protective equipment (helmet protection and anti-vibration gloves); Non-plastic waste bags; Counterfeit parts detection methodology; Afloat automatic identification technology architecture.

This list of potential projects for addressing capability gaps will be updated and prioritized over time, under the oversight of the NAVSUP Log R&D ESG, to ensure that funds allocated provide the highest return on investment consistent with Navy/NAVSUP goals and objectives.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Automated Inventory Management System	0.522	0.564	0.562
<b>Articles:</b>	0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 3223: <i>Logistics R&amp;D</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b><i>FY 2011 Accomplishments:</i></b> Automated Inventory Management System. Use of commercial warehouse management software and wireless Automatic Identification Technologies (AIT) to streamline afloat supply commodity management on large aviation platforms (CVN/LHA/LHD). Funds to provide second year of multi-year Integrated Product &amp; Process Development (IPPD) effort.</p> <p><b><i>FY 2012 Plans:</i></b> Continuation of objectives identified in FY11</p> <p><b><i>FY 2013 Plans:</i></b> Continuation of objectives identified in FY11</p>				
<p><b><i>Title:</i></b> Shipboard Ozone Laundering</p> <p align="right"><b><i>Articles:</i></b></p>		0.077 0	0.083 0	0.083 0
<p><b><i>FY 2011 Accomplishments:</i></b> Shipboard ozone laundering. Development and test of ozone laundering for shipboard use to reduce total operating costs and reduce environmental impact (energy and chemical) usage.</p> <p><b><i>FY 2012 Plans:</i></b> Continuation of FY11 plans</p> <p><b><i>FY 2013 Plans:</i></b> Continuation of FY11 plans if necessary</p>				
<p><b><i>Title:</i></b> Improved General Purpose Protective Equipment</p> <p align="right"><b><i>Articles:</i></b></p>		0.050 0	0.054 0	0.054 0
<p><b><i>FY 2011 Accomplishments:</i></b> Improved General Purpose Protective Equipment. Develop a helmet for shipboard, facility &amp; aircraft maintenance personnel that incorporates hearing protection, air supply, face protection and a means to communicate; Develop anti-vibration protective gloves for maintenance, repair and construction personnel. Follow-on projects in FY12.</p> <p><b><i>FY 2012 Plans:</i></b> Continuation of FY11 projects.</p> <p><b><i>FY 2013 Plans:</i></b> Continuation of FY11 projects if necessary.</p>				
<p><b><i>Title:</i></b> Non-Plastic Waste Bags</p> <p align="right"><b><i>Articles:</i></b></p>		0.079 0	0.086 0	0.086 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 3223: <i>Logistics R&amp;D</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b><i>FY 2011 Accomplishments:</i></b> Non-plastic waste bags. Develop an alternative to plastic trash bags with similar performance characteristics, yet not containing plastic, in order to decrease the amount of plastic waste required to be processed aboard Navy vessels.</p> <p><b><i>FY 2012 Plans:</i></b> Continuation of FY11 Projects.</p> <p><b><i>FY 2013 Plans:</i></b> Continuation of FY12 Projects.</p>				
<p><b><i>Title:</i></b> Counterfeit Parts Detection Methodology</p> <p align="right"><b><i>Articles:</i></b></p> <p><b><i>FY 2011 Accomplishments:</i></b> Counterfeit parts detection methodology. Develop a methodology utilizing existing databases and tools for the detection and mitigation of counterfeit parts in the naval aircraft supply chain. Mitigating counterfeit parts will reduce maintenance and AVDLR costs, while improving safety.</p> <p><b><i>FY 2012 Plans:</i></b> Continuation of FY11 Projects.</p> <p><b><i>FY 2013 Plans:</i></b> Continuation of FY11 Projects if necessary.</p>		0.065 0	0.070 0	0.070 0
<p><b><i>Title:</i></b> Afloat Automatic Identification Technology Architecture</p> <p align="right"><b><i>Articles:</i></b></p> <p><b><i>FY 2011 Accomplishments:</i></b> Afloat Automatic Identification Technology architecture. Establish an afloat AIT architecture that parallels the ashore solution and provides better visibility and reduces shipboard manning requirements. Funds to provide second year of multi-year Integrated Product &amp; Process Development (IPPD) effort.</p> <p><b><i>FY 2012 Plans:</i></b> Continuation of FY11 Projects.</p> <p><b><i>FY 2013 Plans:</i></b> Continuation of Projects if necessary.</p>		0.064 0	0.069 0	0.069 0
<b>Accomplishments/Planned Programs Subtotals</b>		0.857	0.926	0.924

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 3223: <i>Logistics R&amp;D</i>

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

N/A

**D. Acquisition Strategy**

Automated Inventory Management System: Use of commercial warehouse management software and wireless Automatic Identification Technologies (AIT) to streamline afloat supply commodity management on large aviation platforms (CVN/LHA/LHD). Funds to provide initial year of multi-year Integrated Product & Process Development (IPPD) effort.

Shipboard Ozone Laundering: Development and test of ozone laundering for shipboard use to reduce total operating costs and reduce environmental impact (energy and chemical) usage.

Improved General Purpose Protective Equipment: Develop a helmet for shipboard, facility & aircraft maintenance personnel that incorporates hearing protection, air supply, face protection and a means to communicate; Develop anti-vibration protective gloves for maintenance, repair and construction personnel.

Non-Plastic Waste Bags: Develop an alternative to plastic trash bags with similar performance characteristics, yet not containing plastic, in order to decrease the amount of plastic waste required to be processed aboard Navy vessels.

Counterfeit Parts Detection Methodology: Develop a methodology utilizing existing databases and tools for the detection and mitigation of counterfeit parts in the naval aircraft supply chain. Mitigating counterfeit parts will reduce maintenance and AVDLR costs, while improving safety.

Afloat Automatic Identification Technology Architecture: Establish an afloat AIT architecture that parallels the ashore solution and provides better visibility and reduces shipboard manning requirements. Funds to provide initial year of multi-year Integrated Product & Process Development (IPPD) effort.

**E. Performance Metrics**

TBD

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 3225: <i>Ordnance PHST</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3225: <i>Ordnance PHST</i>	0.376	0.364	-	-	-	-	-	-	-	0.000	0.740
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Ordnance Packaging Handling Storage and Transportation (PHST) RDT&E resources focus on developing new Ordnance Handling Equipment (OHE) to replace the 25+ year old equipment presently used by the Fleet for Underway Replenishment (UNREP) operations. This OHE is a high cost and maintenance item. Development of new OHE takes advantage of new technology such as the CH-60 helicopter, which has double the lift capacity of the CH-46. OHE is used daily by the war fighter to conduct Connected Replenishment (CONREP) and Vertical Replenishment (VERTREP). A sample of these efforts includes redesigning the MK 105 sling to increase efficiency during VERTREP, condensing entire families of slings down to fewer and more efficient pieces of gear, developing a stream strongback and the associated equipment necessary to complement, not compromise, the Heavy UNREP initiative of the future, etc. The new sling designs being developed take advantage of present and future manufacturing and operational capabilities. This initiative improves availability, reliability, and maintainability while reducing overall cost. The end result will be a Fleet that has been properly equipped to conduct UNREP with more efficiency.

The PHST Center is developing a baseline of the current naval ordnance PHST logistics system. This baseline will identify inefficiencies and recommend hardware and operational enhancements in the area of modal change, thus providing an investment strategy for future Naval PHST operations by conducting an end-to-end study.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Ordnance PHST Development	0.376	0.364	-
<b>Articles:</b>	0	0	
<b>Description:</b> Develop new OHE to replace the 25+ year old equipment presently in Fleet use to include: 1) Re-design Mk 105 Pendant Sling to optimize cost and throughput during Vertical Replenishment; 2) New concept development to replace 12x12 and 14x14 ft. Nylon Cargo Nets ; 3) Design a new Standard Tension Replacement Alongside Method (STREAM) Strongback to compliment the Fleet's Heavy UNREP initiative of the future; 4) Condense Mk 85, 86, 87, and 100 family of pallet slings into fewer pieces gear to optimize cost and efficiency during CONREP; and 5) Re-design the Mk 45 Handlift Truck. Ordnance PHST will additionally conduct a baseline study of the current Naval PHST logistics system to identify inefficiencies and recommend hardware and operational enhancements.			
<b>FY 2011 Accomplishments:</b> Design new Heavy Lift Stream Strongback. Condense MK-85 Series Pallet Slings to fewer pieces. Complete redesign of MK-45 Handlift Truck. Develop recommended list of hardware and operational enhancements from Baseline Logistics Study.			
<b>FY 2012 Plans:</b>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603739N: <i>Navy Logistic Productivity</i>	<b>PROJECT</b> 3225: <i>Ordnance PHST</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Begin investigating the Mk 24/137 Light Airborne Multi-Purpose System Dolly. Field test a new Mk 105 replacement. Work on potential improvements cited in the PHST baseline study. Develop a Mk 85 series replacement. Evaluate a course of action for the heavy STREAM strongback. A heavy Standard Tension Replacement Alongside Method (STREAM) strongback is a metal rigid item with a 12,000 lb capacity that acts as an intermediate to a ship's STREAM and other handling equipment and provides a means for attaching handling equipment during loading/offloading or connected transfer-at-sea operations.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.376	0.364	-

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

N/A

**D. Acquisition Strategy**

Execution of in-house engineering, design, development and test efforts. Performance-based reviews conducted quarterly or as required by the Project Management Office.

**E. Performance Metrics**

1. Conduct Operational Testing of a Mk 105 Sling Replacement
2. Improve 4 of the 8 areas of concern from the Packaging Handling Storage and Transportation Baseline Study
3. Identify 3 problem areas inherent in the Mk 24/137 Light Airborne Multit-Purpose System Dolly design
4. Conduct a successful Preliminary Design Review for a Mk 85 Series sling replacement

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603746N: (U)RETRACT MAPLE
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	221.725	276.171	341.305	-	341.305	318.138	253.206	179.289	143.889	Continuing	Continuing
1906: <i>Retract Maple</i>	221.725	276.171	341.305	-	341.305	318.138	253.206	179.289	143.889	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	219.463	276.383	359.739	-	359.739
Current President's Budget	221.725	276.171	341.305	-	341.305
Total Adjustments	2.262	-0.212	-18.434	-	-18.434
• Congressional General Reductions	-	-0.212			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	6.746	-			
• SBIR/STTR Transfer	-3.021	-			
• Program Adjustments	-	-	-18.088	-	-18.088
• Rate/Misc Adjustments	-	-	-0.346	-	-0.346
• Congressional General Reductions Adjustments	-1.463	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
 Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603746N: (U)RETRACT MAPLE	<b>PROJECT</b> 1906: <i>Retract Maple</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1906: <i>Retract Maple</i>	221.725	276.171	341.305	-	341.305	318.138	253.206	179.289	143.889	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Retract Maple	221.725	276.171	341.305
<b>Articles:</b>	0	0	0
<b>Description:</b> N/A			
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	221.725	276.171	341.305

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603748N: <i>(U)LINK PLUMERIA</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	59.443	52.588	181.220	-	181.220	192.850	223.246	177.853	175.896	Continuing	Continuing
1978: <i>Link Plumeria</i>	59.443	52.588	181.220	-	181.220	192.850	223.246	177.853	175.896	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	58.030	52.721	35.615	-	35.615
Current President's Budget	59.443	52.588	181.220	-	181.220
Total Adjustments	1.413	-0.133	145.605	-	145.605
• Congressional General Reductions	-	-0.133			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	2.800	-			
• SBIR/STTR Transfer	-0.806	-			
• Program Adjustments	-	-	145.834	-	145.834
• Rate/Misc Adjustments	-	-	-0.229	-	-0.229
• Congressional General Reductions Adjustments	-0.581	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603748N: (U)LINK PLUMERIA	<b>PROJECT</b> 1978: <i>Link Plumeria</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1978: <i>Link Plumeria</i>	59.443	52.588	181.220	-	181.220	192.850	223.246	177.853	175.896	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Link Plumeria	59.443	52.588	181.220
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	59.443	52.588	181.220

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603751N: (U)RETRACT ELM
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	163.393	150.584	174.014	-	174.014	195.678	189.709	141.923	80.579	Continuing	Continuing
2003: <i>Retract Elm</i>	163.393	150.584	174.014	-	174.014	195.678	189.709	141.923	80.579	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	183.187	160.964	200.630	-	200.630
Current President's Budget	163.393	150.584	174.014	-	174.014
Total Adjustments	-19.794	-10.380	-26.616	-	-26.616
• Congressional General Reductions	-	-0.380			
• Congressional Directed Reductions	-	-10.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.999	-			
• SBIR/STTR Transfer	-2.615	-			
• Program Adjustments	-	-	-26.585	-	-26.585
• Rate/Misc Adjustments	-	-	-0.031	-	-0.031
• Congressional Recision Adjustments	-5.878	-	-	-	-
• Congressional General Reductions	-1.302	-	-	-	-
Adjustments					

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603751N: (U)RETRACT ELM	<b>PROJECT</b> 2003: <i>Retract Elm</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2003: <i>Retract Elm</i>	163.393	150.584	174.014	-	174.014	195.678	189.709	141.923	80.579	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Retract Elm	163.393	150.584	174.014
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	163.393	150.584	174.014

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603755N: <i>Ship Self Defense - DEM/VAL</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	3.422	-	-	-	-	-	-	-	-	0.000	3.422
2133: <i>QRCC</i>	2.515	-	-	-	-	-	-	-	-	0.000	2.515
2184: <i>Force Advanced Warfare Concept Technology</i>	0.907	-	-	-	-	-	-	-	-	0.000	0.907

**A. Mission Description and Budget Item Justification**

This program incorporates efforts dedicated to the enhancement of ship defense against Anti-Air Warfare (AAW) and other evolving threats. Its primary focus is on the development of technologies, systems, and procedures necessary to defeat the evolving Anti-Ship Cruise Missile (ASCM) threat and then it expands to allow for application of these technologies in other warfighting areas. These projects focus on ship defense improvements through the development of advanced concepts and capabilities that will enhance both defense in depth of ships in a force and self defense of individual ships in a littoral war-fighting environment.

Quick Reaction Combat Capability (QRCC): The Requirements & Analysis Working Group (RAWG) was established in 1992 to conduct analysis of AAW ship self-defense capabilities and to establish requirements for ship class specific ASCM self-defense to support Navy AAW investment decisions. The RAWG is an independent and objective analysis team that constitutes the National expertise in force and self-defense capabilities assessment in AAW and Surface Warfare (SUW). RAWG maintains a database of ship system and ship class performance against ASCM and SUW threats to support rapid response to tasking.

Force Advanced Warfare Concept Technology (FACT), Project 2184, demonstrates concepts and capabilities that will enhance the warfighting ability of ships and aircraft and enable the coupling of the Force into a single, distributed weapon system through more effective use of tactical data, and force sensors and weapons.

In FY11, the Innovation Team began development and prototyping of technologies to provide a Strike Group with a Geo-Referenced Common Tactical Maritime Picture (CTMP), incorporating several thousand square miles of accurate, real time surface track data from aircraft such as Broad Area Maritime Surveillance Aircraft (BAMS), P-3, P-8, MH-60R and Fire Scout Unmanned Air Vehicle (UAV). FACT will begin to develop technologies for integration of the tactical surface picture in to surface combat systems such as Aegis and Ship Self Defense System (SSDS) and technologies to disseminate the Common Tactical Maritime Picture amongst the Carrier Strike Group/Expeditionary Strike Group (CSG/ESG). The Innovation Team will also analyze and assess the feasibility of wide area Anti-Submarine Warfare (ASW) sensor netting.

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
---	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603755N: <i>Ship Self Defense - DEM/VAL</i>
---	---

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	4.385	-	-	-	-
Current President's Budget	3.422	-	-	-	-
Total Adjustments	-0.963	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.855	-			
• SBIR/STTR Transfer	-0.086	-			
• Congressional General Reductions Adjustments	-0.022	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Program completes in FY 2011.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603755N: <i>Ship Self Defense - DEM/VAL</i>	<b>PROJECT</b> 2133: <i>QRCC</i>
---	---	-------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2133: <i>QRCC</i>	2.515	-	-	-	-	-	-	-	-	0.000	2.515
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

RAWG was established in 1992 to conduct analysis of AAW ship self-defense capabilities and to establish requirements for ship class specific ASCM self-defense to support Navy AAW investment decisions. The RAWG is an independent and objective analysis team that constitutes the National expertise in force and self-defense capabilities assessment in AAW and SUW and maintains a database of ship system and ship class performance against ASCM and SUW threats to support rapid response to tasking.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> QRCC	2.515	-	-
<b>Articles:</b>	0		
<b>FY 2011 Accomplishments:</b> RAWG has completed updates to modeling tools used for combat system analysis creating a more complete view of ship capability; updated data used for combat system analysis to reflect new capabilities and updated intelligence assessments; conducted an assessment of LHA-6 to evaluate Dynamic No Fire Zone impacts on self defense; completed Task Force Defense Study to assess ship AT/FP capabilities; evaluate baseline Nulka performance for various ship classes and integrate hard kill and soft kill analyses.			
<b>Accomplishments/Planned Programs Subtotals</b>	2.515	-	-

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

- 1) Successfully complete 90% of assigned self-defense analysis tasks in support of Navy program reviews.
- 2) Successfully respond to 90% of all emergent tasks in support of Navy self-defense analysis questions.





**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603755N: <i>Ship Self Defense - DEM/VAL</i>	<b>PROJECT</b> 2184: <i>Force Advanced Warfare Concept Technology</i>
---	---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2184: <i>Force Advanced Warfare Concept Technology</i>	0.907	-	-	-	-	-	-	-	-	0.000	0.907
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Force Advanced Warfare Concept Technology (FACT) Program is an advanced development effort designed to demonstrate Advanced Force concepts and capabilities that will significantly improve our Force defense in depth, including both local area and self defense capabilities against current and future threats. FACT improvements are designed to enhance the warfighting ability of ships and aircraft and to enable coupling of the Force into a single, distributed weapon system and towards more effective use of tactical data and the cooperative use of all the force sensors and weapons. These capabilities will provide the ship offensive flexibility needed to meet the threat brought about by increasing numbers of highly sophisticated weapons held by potentially hostile third world countries. FACT defines requirements and develops prototype systems or modifications to existing systems to test new concepts for the coordination of Force operations. FACT is a model innovation cell which consistently delivers advanced war-fighting capability that addresses current Fleet shortfalls and needs quickly and cost effectively. Some examples of prototype systems now in production are AN/SPS-48C Detection Data Converter, AN/SPS-48E Environmental Control Feature, Shipboard Gridlock System/Automatic Correlation (SGS/AC) and Dial-a-Track Quality (Link-11 Quality Selection). Other FACT developments include the Automatic Identification System and the Multi-Frequency Link-11 capability; Dual Net Multi-Frequency Link-11 Force Threat Evaluation Weapons Assignment; the prototype Area Air Defense Commander and the Joint Targeting Attack and Assessment Capability (JTAAC).

FY11, the Innovation Team began development and prototyping of technologies to provide a Strike Group with a Geo-Referenced CTMP, incorporating several thousand square miles of accurate, real time surface track data from aircraft such as BAMS, P-3, P-8, MH-60R and Fire Scout UAV. FACT will begin to develop technologies for integration of the tactical surface picture in to surface combat systems such as Aegis and SSDS and technologies to disseminate the CMTP amongst the CSG/ESG. The Innovation Team will also analyze and assess the feasibility of wide area ASW sensor netting.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Force Advanced Warfare Concept Technology (FACT)	0.907	-	-
<b>Articles:</b>	0		
<b>Description:</b> Conduct critical FACT initiative proof of concept experiments. Provide top level programmatic support, technical analysis and assist in the development processes, procedures and documentation that impact the execution of the FACT program requirements. On-going development of an Ocean Surveillance Initiative (OSI) prototype which will leverage the end to end capability realized by JTAAC and has the objective goal of attaining a tactically significant probability of detection, continuous track, and correct classification of small and medium sized vessels at sea state 5. Conduct critical experiments in support of the OSI.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603755N: <i>Ship Self Defense - DEM/VAL</i>	<b>PROJECT</b> 2184: <i>Force Advanced Warfare Concept Technology</i>
---	---	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<p><b><i>FY 2011 Accomplishments:</i></b>                      Developed technologies for a proof of concept demonstration of multi-platform, multi-sensor data fusion algorithms. The Innovation Team will continue to analyze and developed concepts and technologies necessary to merge the Common Tactical Maritime Picture (CTMP) data to create and disseminate the CTMP among the USN battlegroup in a particular theater of interest. The Innovation Team continued to analyze and provide options for wide area ASW sensor netting throughout the defense and security communities.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	0.907	-	-

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

Quarterly program reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603755N: <i>Ship Self Defense - DEM/VAL</i>	<b>PROJECT</b> 2184: <i>Force Advanced Warfare Concept Technology</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	C/CPFF	JHU/APL:Laurel, MD	17.262	-		-		-		-	0.000	17.262	
<b>Subtotal</b>			17.262	-		-		-		-	0.000	17.262	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support Costs	C/CPAF	DELTA RESOURCES:Arlington, VA	6.544	-		-		-		-	0.000	6.544	
<b>Subtotal</b>			6.544	-		-		-		-	0.000	6.544	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Defense Acquisition Workforce Development Fund	Various	Various:Various	0.036	-		-		-		-	0.000	0.036	
<b>Subtotal</b>			0.036	-		-		-		-	0.000	0.036	

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			23.842	-		-		-		-	0.000	23.842	

**Remarks**

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603764N: (U)LINK EVERGREEN
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	48.618	144.985	68.654	-	68.654	55.378	46.504	47.312	48.116	Continuing	Continuing
1972: <i>Link Evergreen</i>	48.618	144.985	68.654	-	68.654	55.378	46.504	47.312	48.116	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	41.433	144.985	68.654	-	68.654
Current President's Budget	48.618	144.985	68.654	-	68.654
Total Adjustments	7.185	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.000	-			
• SBIR/STTR Transfer	-0.604	-			
• Rate/Misc Adjustments	-	-			
• Congressional General Reductions Adjustments	-0.211	-			

**Change Summary Explanation**

Technical: Not applicable.  
 Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603764N: (U)LINK EVERGREEN	<b>PROJECT</b> 1972: <i>Link Evergreen</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
1972: <i>Link Evergreen</i>	48.618	144.985	68.654	-	68.654	55.378	46.504	47.312	48.116	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Link Evergreen	48.618	144.985	68.654
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	48.618	144.985	68.654

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603787N: (U) <i>SPECIAL PROCESSES</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	35.802	43.365	44.487	-	44.487	48.945	51.243	48.494	49.320	Continuing	Continuing
0116: <i>Linear Tank</i>	35.802	43.365	44.487	-	44.487	48.945	51.243	48.494	49.320	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	36.457	43.704	44.468	-	44.468
Current President's Budget	35.802	43.365	44.487	-	44.487
Total Adjustments	-0.655	-0.339	0.019	-	0.019
• Congressional General Reductions	-	-0.339			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.400	-			
• SBIR/STTR Transfer	-0.604	-			
• Rate/Misc Adjustments	-	-	0.019	-	0.019
• Congressional General Reductions Adjustments	-0.451	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
 Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603787N: (U) <i>SPECIAL PROCESSES</i>	<b>PROJECT</b> 0116: <i>Linear Tank</i>
---	---	--

COST (\$ in Millions)	FY 2011		FY 2012		FY 2013		FY 2013		FY 2013		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		Cost To Complete	Total Cost
	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost											
0116: <i>Linear Tank</i>	35.802	43.365	44.487	-	44.487	48.945	51.243	48.494	49.320	Continuing	Continuing											
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0													

**A. Mission Description and Budget Item Justification**

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Linear Tank	35.802	43.365	44.487
<b>Articles:</b>	0	0	0
<b>Description:</b> N/A			
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> N/A			
<b>FY 2013 Plans:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	35.802	43.365	44.487

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>										
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603790N: <i>NATO Research and Deve</i>										
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	8.888	9.140	9.389	-	9.389	9.520	9.579	9.753	9.970	Continuing	Continuing
2293: <i>NATO Cooperative R &amp; D</i>	8.888	9.140	9.389	-	9.389	9.520	9.579	9.753	9.970	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

In accordance with Title 10 United States Code, Section 2350a, this Program Element (PE) provides funding for research and development (R&D) programs with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Under Secretary of Defense, Acquisition and Technology and Logistics (USD, AT&L) must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate Summary Statement of Intent (SSOI) that also states why the project serves to increase the defense capabilities of the U.S. The SSOI is used to obtain Project approval by the Department of the Navy and the Office of the Secretary of Defense.

This program historically does not meet established execution benchmarks. The North Atlantic Treaty Organization (NATO) R&D cooperative programs differ from other Research, Development, Test and Evaluation (RDT&E) programs because issuance of funding from this PE coincides with the signature of international agreements. These signatures occur throughout the fiscal year and often encounter unexpected delays during the staffing and negotiation phases of agreement processing prior to signature.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	9.196	9.140	9.456	-	9.456
Current President's Budget	8.888	9.140	9.389	-	9.389
Total Adjustments	-0.308	-	-0.067	-	-0.067
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.261	-			
• Program Adjustments	-	-	-0.022	-	-0.022
• Rate/Misc Adjustments	-	-	-0.045	-	-0.045
• Congressional General Reductions Adjustments	-0.047	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603790N: <i>NATO Research and Deve</i>	<b>PROJECT</b> 2293: <i>NATO Cooperative R &amp; D</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2293: <i>NATO Cooperative R &amp; D</i>	8.888	9.140	9.389	-	9.389	9.520	9.579	9.753	9.970	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

In accordance with Title 10 U.S. Code Section 2350a, this project provides funding for research and development projects with approved allies under international agreements. These funds can only be applied to work efforts in the U.S., and the Office of Secretary of Defense must approve each international agreement. The program provides funds for multiple projects under separately approved international agreements as well as funds that support the establishment of such agreements. Each international agreement is summarized in a separate SSOI which also states why the project serves to increase the conventional defense capabilities of the U.S. The SSOI is used to obtain project approval by the Department of the Navy and the Office of the Secretary of Defense.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> NATO Cooperative R & D	8.888	9.140	9.389
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b>			
<ul style="list-style-type: none"> <li>- Continued to plan and/or support approved cooperative projects.</li> <li>- Continued support for the Advanced Electromagnetic Silencing project between the U.S. and the United Kingdom (UK).</li> <li>- Continued support for the Advanced Radar Technology Integrated System Testbed (ARTIST) project between the U.S. and UK.</li> <li>- Continued support for the Coalition Distributed Engineering Plant Baseline Architecture (CDEP-BA) cooperative project between the U.S. and multiple nations.</li> <li>- Continued support for the Defensive Aids Suite/Next Generation Torpedo Defense cooperative project between the U.S. and the UK.</li> <li>- Continued support for Enhancing and Validating the Dynamic System Mechanics Advanced Simulation (DYSMAS) to meet Emerging Modeling and Simulation Changes cooperative project between the U.S. and Germany.</li> <li>- Continued support for the Submarine Hydrodynamics Maneuvering &amp; Control cooperative project between the U.S. and the UK.</li> <li>- Continued support for the Submarine Sonar Telemetry cooperative project between the U.S. and the UK.</li> <li>- Continued support for Torpedo Guidance and Control; False Targets cooperative project between the U.S. and the UK.</li> <li>- Initiated support for the Coalition Network for Secure Information Sharing (CoNSIS) cooperative project between the U.S. and multiple nations.</li> <li>- Initiated support for the Medusa project between the U.S. and Japan.</li> <li>- Initiated support for the Submarine Composite Structures project between the U.S. and UK.</li> <li>- Initiated support for the Test, Planning, and execution project between the U.S. and multiple nations.</li> <li>- Completed support for the Defensive Aids Suite project between the U.S. and the UK.</li> </ul>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603790N: <i>NATO Research and Deve</i>	<b>PROJECT</b> 2293: <i>NATO Cooperative R &amp; D</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<ul style="list-style-type: none"> <li>- Completed support for the Failure Prediction of Composite and Hybrid Naval Structures (DYCOSS-3D) cooperative project between the U.S. and the Netherlands.</li> <li>- Completed support for the Maritime Missile Defense Modeling and Simulation Synthetic Interoperability Testing and Evaluation (SITE) cooperative project between the U.S. and multiple nations.</li> <li>- Completed support for the Submarine Communication Buoy project between the U.S. and the UK.</li> <li>- Completed support for the Surface Combatant Aluminum Structure Design cooperative project between the U.S., Finland and Germany.</li> <li>- Completed support for the Ultra Heavy-Lift Amphibious Connector (UHAC) project between the U.S. and Singapore.</li> <li>- Planned support for the Ice Capable Surface Combatant project between the U.S. and Finland.</li> <li>- Planned support for the Submarine Advanced Autopilot project between the U.S. and UK.</li> </ul> <p><b><i>FY 2012 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Continue to plan and/or support FY11 approved cooperative projects less those noted as completed above.</li> <li>- Plan support for the Alternate Material Propeller cooperative project between the U.S. and Australia.</li> <li>- Plan support for the Fiber Optic Mini Acoustic project between the U.S. and Australia.</li> <li>- Plan support for the Six Degrees of Freedom (6DOF) Amendment 1 cooperative project between the U.S. and Italy.</li> <li>- Plan support for the Submarine Very Low Frequency project between the U.S. and UK.</li> </ul> <p><b><i>FY 2013 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Continue to plan and/or support FY12 approved cooperative projects.</li> </ul>			
<b>Accomplishments/Planned Programs Subtotals</b>	8.888	9.140	9.389

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

The intent of the North Atlantic Treaty Organization (NATO) cooperative R&D program is to provide "start-up" funds for projects seeking allied contributions into cooperative research and development projects with the U.S. The primary metric used in the program is foreign contributions into projects supported by the program. The performance goal is met if total foreign contributions into projects exceed total NATO cooperative R&D program funds by over 100%.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603790N: <i>NATO Research and Deve</i>	<b>PROJECT</b> 2293: <i>NATO Cooperative R &amp; D</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test and Evaluation	C/FP	NAVSEA:Washington Navy Yard, DC	8.407	2.000	Sep 2012	1.800	Sep 2013	-		1.800	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NSWC:West Bethesda, MD	8.121	2.000	Sep 2012	2.400	Sep 2013	-		2.400	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NUWC:Newport, RI	1.002	-		0.750	Jun 2013	-		0.750	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	SPAWAR:San Diego, CA	1.853	1.500	Sep 2012	1.000	Sep 2013	-		1.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NAVAIR:Patuxent River, MD	1.000	-		0.750	Apr 2013	-		0.750	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NRL:Washington, DC	0.900	0.700	Sep 2012	0.750	Sep 2013	-		0.750	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	NAWC:Point Mugu, CA	2.500	2.000	Apr 2012	1.000	Apr 2013	-		1.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation	C/FP	Miscellaneous:Philadelphia, PA	6.283	0.940	Sep 2012	0.939	Sep 2013	-		0.939	Continuing	Continuing	Continuing
<b>Subtotal</b>			30.066	9.140		9.389		-		9.389			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
ACQ Workforce Fund	Various	Various:Various	0.049	-		-		-		-	0.000	0.049	
<b>Subtotal</b>			0.049	-		-		-		-	0.000	0.049	

			<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>			30.115	9.140		9.389		-		9.389			

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603790N: <i>NATO Research and Deve</i>	<b>PROJECT</b> 2293: <i>NATO Cooperative R &amp; D</i>

FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<b>Proj 2293</b>																												
International Agreements																												

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603790N: <i>NATO Research and Deve</i>	<b>PROJECT</b> 2293: <i>NATO Cooperative R &amp; D</i>
---	--	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2293</b>				
International Agreements	1	2011	4	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>								
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0603795N: <i>Land Attack Tech</i>								
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	0.899	0.421	16.132	-	16.132	5.077	2.046	-	-	0.000	24.575
2038: <i>ADVANCED MINOR CALIBER GUN</i>	-	-	16.132	-	16.132	5.077	2.046	-	-	0.000	23.255
2325: <i>Naval Fires Control System</i>	0.899	0.421	-	-	-	-	-	-	-	0.000	1.320

**A. Mission Description and Budget Item Justification**

The Naval Fires Control System (NFCS) (Project 2325) - Automates shipboard land attack battle management duties to be interoperable and consistent with joint C4ISR systems. This shipboard system will significantly improve the Navy's ability to support Operational Maneuver from the Sea (OMFTS).

The Advanced Minor Caliber Gun (Project 2038) will support non-recurring engineering, component integration, and testing efforts required for the Task Force Defense (TFD) capability upgrade to the MK38 Mod 2, a minor caliber gun weapon system.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	0.905	0.421	0.427	-	0.427
Current President's Budget	0.899	0.421	16.132	-	16.132
Total Adjustments	-0.006	-	15.705	-	15.705
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.001	-			
• Program Adjustments	-	-	15.705	-	15.705
• Rate/Misc Adjustments	-	-	-	-	-
• Congressional General Reductions Adjustments	-0.005	-	-	-	-

**Change Summary Explanation**

Technical: Funding added supports non-recurring engineering, component integration, and testing efforts required for the Task Force Defense (TFD) capability upgrade to the MK38 Mod 2, a minor caliber gun weapon system.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603795N: <i>Land Attack Tech</i>	<b>PROJECT</b> 2038: <i>ADVANCED MINOR CALIBER GUN</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2038: <i>ADVANCED MINOR CALIBER GUN</i>	-	-	16.132	-	16.132	5.077	2.046	-	-	0.000	23.255
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Advanced Minor Caliber Gun project will support non-recurring engineering, component integration, testing and qualification efforts required for the Task Force Defense (TFD) capability upgrade to the MK38 Mod 2, a minor caliber gun weapon system. TFD creates a near term improvement to address ship based, close range solutions for FIFTH Fleet Counter- Swarm. The MK38 Mod 2 was developed in FY04 under Chief of Naval Operations (CNO) direction to outfit near term deployers to counter small boat threats.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Systems Engineering and Testing	-	-	16.132
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Funding will purchase commercially available Non-Developmental Items (NDI) hardware and test units; provide systems engineering, integration engineering, software updates, on-mount testing, safety and technical oversight support for the MK38 Task Force Defense (TFD) capability upgrade development.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	16.132

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• WPN/4217: <i>GUN MOUNT MODS</i>	0.000	0.000	20.900	0.000	20.900	33.500	45.800	45.400	45.200	0.000	190.800

**D. Acquisition Strategy**

The acquisition strategy for the Task Force Defense (TFD) capability will support MK38 Mod 2 OEM engineering services required to meet the performance requirements of TFD.

**E. Performance Metrics**

Quarterly Program Reviews and semi-annual Product Certification Panel Reviews.





**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603795N: <i>Land Attack Tech</i>	<b>PROJECT</b> 2325: <i>Naval Fires Control System</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2325: <i>Naval Fires Control System</i>	0.899	0.421	-	-	-	-	-	-	-	0.000	1.320
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Naval Fires Control System (NFCS) covers the mission planning and coordination for current and future Naval Surface Fire Support system requirements. NFCS plans, coordinates and manages the firing of Naval Surface Fires Support (NSFS) weapon systems including the 5"/62 caliber gun and Conventional Munitions. The NFCS phase I is interfacing with the Advanced TOMAHAWK Weapons Control Systems (ATWCS) and the Tactical TOMAHAWK Weapons Control Systems (TTWCS) in order for NFCS to share the Advanced Tactical Display Console (ATDC) with ATWCS and TTWCS. Funding provides software and system engineering analysis and development, reuse and integration of government and commercial computer programs to support extended range munitions and other naval weapon applications.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Software/System Engineering</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Funding provided software and system engineering analysis and development. Reuse and integration of government and commercial computer programs to support extended range munitions and other naval weapon applications.</p> <p><b>FY 2012 Plans:</b> Funding will provide software and system engineering analysis and development. Reuse and integration of government and commercial computer programs to support extended range munitions and other naval weapon applications.</p>	0.659 0	0.296 0	-
<p><b>Title:</b> Technical Design Agent</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Funding provided Technical Design Agent (TDA) support, joint requirements investigation and Concept of Operations (CONOPs) scenario development.</p> <p><b>FY 2012 Plans:</b> Funding will provide Technical Design Agent (TDA) support, joint requirements investigation and Concept of Operations (CONOPs) scenario development.</p>	0.100 0	0.050 0	-
<p><b>Title:</b> C4I Systems</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b></p>	0.140 0	0.075 0	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603795N: <i>Land Attack Tech</i>	<b>PROJECT</b> 2325: <i>Naval Fires Control System</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Funding provided continued support for C4I and combat system interface investigation and analysis in relation to developing C4I systems and technologies.  <b>FY 2012 Plans:</b> Funding will provide continued support for C4I and combat system interface investigation and analysis in relation to developing C4I systems and technologies.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.899	0.421	-

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 5112: <i>OPN</i>	1.080	2.049	3.472	0.000	3.472	1.224	1.199	0.909	0.944	0.000	12.264

**D. Acquisition Strategy**  
A sole source contract was awarded to GDIS for Phase 1 software development. NSWC/DD took over this function from GDIS and will remain the software developer. The original hardware manufacturer and developer is NUWC, Keyport.

**E. Performance Metrics**  
Quarterly Program Reviews and semi-annual Product Certification Panel Reviews.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	42.464	40.992	44.994	-	44.994	60.907	53.731	54.732	55.728	Continuing	Continuing
2319: <i>Non-Lethal Weapons</i>	42.464	40.992	44.994	-	44.994	60.907	53.731	54.732	55.728	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The DoD's Joint Non-Lethal Weapons Program (JNLWP) was established by the Secretary of Defense, who assigned centralized responsibility for DoD joint research and development of non-lethal weapons and technology to the Commandant of the Marine Corps as the Executive Agent. The Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) provides principle oversight of the JNLWP.

The efforts in this Program Element (PE) reflect Joint Service research and development (R&D) investment decisions provided by the Joint Non Lethal Weapons Integrated Product Team, a multi-service flag level corporate board that executes the JNLWP for the Executive Agent. Research conducted is based on the needs and capabilities of the Services, the Special Operations Command and the Coast Guard, as identified in the DoD's Non-Lethal Weapons Joint Capabilities Document. This coordinated joint R&D development approach addresses mutual capability gaps and assures the best non-lethal technologies and equipment are provided to the operating forces while eliminating duplicative Service investment.

This PE funds Joint Service research, development, test, and evaluation of non-lethal weapon (NLW) systems and technologies that provide a non-lethal capability to minimize fatal or permanent injuries as well as undesired damage to property and the environment. NLW are designed to incapacitate or hinder movement of individuals, crowds, or equipment. The availability of NLW allows commanders less than lethal options, across the spectrum of military operational warfare, i.e., peacekeeping, humanitarian assistance and disaster relief, as well as special operations.

The Joint Non-Lethal Weapons Directorate was established by the Executive Agent to manage the day to day research and development activities of the DoD Joint Non-Lethal Weapons Program. The JNLWP funding is distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Service is responsible for their procurement and operating support costs.

Due to the number of efforts in this PE, the programs described herein are representative of the work included in this PE.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	43.272	40.992	50.348	-	50.348
Current President's Budget	42.464	40.992	44.994	-	44.994
Total Adjustments	-0.808	-	-5.354	-	-5.354
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.585	-			
• Program Adjustments	-	-	-5.219	-	-5.219
• Rate/Misc Adjustments	-	-	-0.135	-	-0.135
• Congressional General Reductions Adjustments	-0.223	-	-	-	-

**Change Summary Explanation**

Beginning in FY 2013, previously OM,MC appropriation funded operating costs (i.e. civilian salaries) were permanently transferred into this Program Element, which increased funding by \$3.1M.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2319: <i>Non-Lethal Weapons</i>	42.464	40.992	44.994	-	44.994	60.907	53.731	54.732	55.728	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 non-lethal weapon (NLW) systems that provide a new non-lethal capability to minimize fatal or permanent injuries and undesired damage to property and the environment. These systems are designed to stun, incapacitate, or hinder movement of individuals, crowds or equipment. The availability of NLW allows commanders less than lethal options, particularly in urban warfare and military operations other than war, i.e., peacekeeping, humanitarian assistance and disaster relief, as well as special operations.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> *Modeling and Simulation (M&amp;S) of NLWs.</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Continued modeling and simulation (M&amp;S) of NLWs in warfighter training/war gaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.</p> <p><b>FY 2012 Plans:</b> Continue modeling and simulation (M&amp;S) of NLWs in warfighter training/war gaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.</p> <p><b>FY 2013 Plans:</b> Continue modeling and simulation (M&amp;S) of NLWs in warfighter training/war gaming models and performance effects data collection/population to demonstrate/analyze NL effects and optimize training.</p>	<p>1.167</p> <p>0</p>	<p>1.202</p> <p>0</p>	<p>1.256</p> <p>0</p>
<p><b>Title:</b> *Evaluations of NLWs.</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b> Continued evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication.</p> <p><b>FY 2012 Plans:</b> Continue evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication.</p> <p><b>FY 2013 Plans:</b></p>	<p>1.486</p> <p>0</p>	<p>1.531</p> <p>0</p>	<p>2.250</p> <p>0</p>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continue evaluation of NLWs by Service warfighting laboratories and Joint Staff, J7, Joint and Coalition Warfighting for direct user feedback of various non-lethal (NL) technologies and munitions to include policy and strategy and strategic communication.				
<b>Title:</b> *JNLW Program's execution oversight and technologies database support.				
<b>Articles:</b>		3.777 0	3.890 0	6.998 0
<b>FY 2011 Accomplishments:</b> Continued execution oversight, administration and support of the Joint NLW Program and technologies database. The increase in this line item for FY2013 and out reflects funding for the operation of the JNLWD.				
<b>FY 2012 Plans:</b> Continue execution oversight, administration and support of the Joint NLW Program and technologies database. The increase in this line item for FY2013 and out reflects funding for the operation of the JNLWD.				
<b>FY 2013 Plans:</b> Continue execution oversight, administration and support of the Joint NLW Program and technologies database. The increase in this line item for FY2013 and out reflects funding for the operation of the JNLWD.				
<b>Title:</b> *Program Support of the Joint NLW Program.				
<b>Articles:</b>		2.253 0	2.321 0	2.425 0
<b>FY 2011 Accomplishments:</b> Continued program support efforts for each Service's coordination and participation in the Joint NLW Program. This includes SOCOM and USCG.				
<b>FY 2012 Plans:</b> Continue program support efforts for each Service's coordination and participation in the Joint NLW Program. This includes SOCOM and USCG.				
<b>FY 2013 Plans:</b> Continue program support efforts for each Service's coordination and participation in the Joint NLW Program. This includes SOCOM and USCG.				
<b>Title:</b> *Active Denial Technology (ADT) Transition.				
<b>Articles:</b>		1.950 0	1.000 0	1.045 0
<b>FY 2011 Accomplishments:</b>				



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continued maturation of active denial technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. <b>FY 2012 Plans:</b> Continue maturation of active denial technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record. <b>FY 2013 Plans:</b> Continue maturation of active denial technologies to increase system efficiencies and reduce system size, weight and cost in preparation for transition to joint acquisition programs of record.				
<b>Title:</b> *JNLW Emerging Technologies		15.216	15.650	16.120
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Continued the advanced development of a wide range of Counter-Personnel and Counter-Materiel emerging technologies in directed energy and kinetic weapons and munitions to support Combatant Commands and Service capability gaps and priorities. This line item funds maturing technology transitions from advanced technology development efforts. Successful Non-Lethal system demonstrations included escalation of force vehicle stopping options with Distributed Sound and Light Array/Pre-Emplaced Vehicle Stopper, long range vessel stopping options with RF Vessel Stopper, small and mid size vessel stopping with entanglement devices, counter material options with a counter electronic system, and counter personnel options with 40mm Human Electro-Muscular Incapacitation. <b>FY 2012 Plans:</b> Continue the advanced development of a wide range of Counter-Personnel and Counter-Materiel emerging technologies in directed energy and kinetic weapons and munitions to support Combatant Commands and Service capability gaps and priorities. This line item funds maturing technology transitions from advanced technology development efforts. <b>FY 2013 Plans:</b> Continue the advanced development of a wide range of Counter-Personnel and Counter-Materiel emerging technologies in directed energy and kinetic weapons and munitions to support Combatant Commands and Service capability gaps and priorities. This line item funds maturing technology transitions from advanced technology development efforts.				
<b>Title:</b> *System development and Design of technology development.		5.864	3.764	4.508
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b>				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Continued system development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks. <b>FY 2012 Plans:</b> Continue system development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks. <b>FY 2013 Plans:</b> Continue system development and design of technology development downselected items to proceed into the acquisition cycle to provide NL technology solutions to critical joint mission tasks.				
<b>Title:</b> *Develop/expand the NATO Measures of Effectives (MOE) efforts. <b>Articles:</b>		1.873 0	1.981 0	2.070 0
<b>FY 2011 Accomplishments:</b> Continued to develop/expand the NATO Measures of Effectives (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with combatant commander (COCOM) staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions. <b>FY 2012 Plans:</b> Continue to develop/expand the NATO Measures of Effectives (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with combatant commander (COCOM) staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions. <b>FY 2013 Plans:</b> Continue to develop/expand the NATO Measures of Effectives (MOE) efforts, chaired by the U.S. to provide input for Defense Capabilities Initiative (DCI) and NATO assessment of NLW in the Defense planning process. Expanded interaction with combatant commander (COCOM) staffs to identify emerging NLW capabilities and their utility in theater operations and Homeland Security missions.				
<b>Title:</b> *Mission Payload Module Non Lethal Weapon System (formerly TUGV) <b>Articles:</b>		3.046 0	4.664 0	2.134 0
<b>FY 2011 Accomplishments:</b> Continued development of a tube launched NL munition for integration on vehicles and vessels, with a range of 30-150 meters threshold (T) and 10 -500 meters objective (O). Efforts will include the final design and payload development, MS B				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
documentation development, coordination and approval. Conducted Government confirmation tests to evaluate the effectiveness and Risk of Significant Injury (RSI) of the contractor's non-lethal munitions designs. Evaluated the technical adequacy of the proposed system design to ensure that the technology within the proposed system design met the performance specifications. <b>FY 2012 Plans:</b> Continue development of a tube launched NL munition for integration on HMMWVs, tactical vehicles, boats and ships, with a range of 30-150 meters (T) and 10 - 500 meters (O). Efforts will include completion of EMD contracting, preliminary design review, preliminary review boards and panels. <b>FY 2013 Plans:</b> Continue development of a tube launched NL munition for integration on HMMWVs, tactical vehicles, boats and ships, with a range of 30-150 meters (T) and 10 - 500 meters (O). Finalize system design and conduct pre-developmental test activities to determine system readiness for developmental testing.				
<b>Title:</b> *Joint Integration Program (JIP).		0.600	0.600	0.600
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Continued to select and test newly developed commercial products that may meet the Joint Service requirements for specific NL capability set common items. Evaluations included the following COTS items, OC (Oleoresin Capsicum) Pepper Spray, COTS Non-Lethal Fogger Grenades. <b>FY 2012 Plans:</b> Continue to select and test newly developed commercial products that may meet the Joint Service requirements for specific NL capability set common items. <b>FY 2013 Plans:</b> Continue to select and test newly developed commercial products that may meet the Joint Service requirements for specific NL capability set common items.				
<b>Title:</b> *Studies and Analysis		5.232	4.389	5.588
		<b>Articles:</b> 0	0	0
<b>FY 2011 Accomplishments:</b> Continued medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/ analysis of emerging technologies for possible NL application. Human Effects Studies and assessments included analysis on Kibosh, Harbinger and Mission Payload Module efforts, ADT Beam Characterization and Diagnostic Suite				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
study, and assessment of methodology used to determination of Non-Lethal Risk of Significant Injury (RSI) for multiple munitions and systems.  <b>FY 2012 Plans:</b> Continue medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/ analysis of emerging technologies for possible NL application.  <b>FY 2013 Plans:</b> Continue medical and NL casualty data research and collection; human effects assessments; acceptability analysis; and technical studies/ analysis of emerging technologies for possible NL application.			
<b>Accomplishments/Planned Programs Subtotals</b>	42.464	40.992	44.994

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

N/A

**D. Acquisition Strategy**

The JNLW Program strategy is to continue to pursue the fielding of NLW systems through modifying Commercial-Off-The-Shelf (COTS) products for near term capabilities and the development of new technology NLW systems in various stages of acquisition. These are balanced with efforts in modeling and simulation, experimentation, and state-of-the-art technology investment. The acquisition strategy for each weapon system is largely Lead Service dependent. The JNLWP provides RDT&E funding while the Services are responsible for procurement and operations and maintenance funding. For complex development programs, such as directed energy research, JNLWP RDT&E funds will augment each Service's RDT&E funding in support of joint applications.

**E. Performance Metrics**

N/A

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
NLW Product Development	MIPR	ARDEC:Picatinny, NJ	41.188	5.311	Oct 2011	2.500	Oct 2012	-		2.500	0.000	48.999	
NLW Product Development	MIPR	SOCOM:McDill AFB, FL	14.177	2.000	Oct 2011	3.500	Oct 2012	-		3.500	0.000	19.677	
NLW Product Development	Various	NSWC:Various	19.155	2.941	Oct 2011	4.460	Oct 2012	-		4.460	0.000	26.556	
NLW Product Development	MIPR	USAF:Eglin AFB, FL	16.964	-		-		-		-	0.000	16.964	
NLW Product Development	MIPR	USAF:Kirtland AFB, NM	22.061	1.035	Oct 2011	1.500	Oct 2012	-		1.500	0.000	24.596	
NLW Product Development	MIPR	USAF:Brooks AFB, TX	44.123	5.500	Oct 2011	3.500	Oct 2012	-		3.500	0.000	53.123	
NLW Product Development	MIPR	JWCF:Fort Monroe, VA	12.157	-		-		-		-	0.000	12.157	
NLW Product Development	Various	MCSC:Quantico, VA	16.487	4.664	Oct 2011	5.000	Oct 2012	-		5.000	0.000	26.151	
NLW Product Development	MIPR	NSMA:Arlington, VA	24.277	-		-		-		-	0.000	24.277	
NLW Product Development	C/CPFF	MCLB:Albany, GA	8.316	-		-		-		-	0.000	8.316	
NLW Product Development	MIPR	M&S:Various	16.910	1.208	Oct 2011	1.500	Oct 2012	-		1.500	0.000	19.618	
NLW Product Development	Various	JIP:Various	12.512	0.600	Oct 2011	0.600	Oct 2012	-		0.600	0.000	13.712	
NLW Product Development	Various	Uniformed Services:Various	103.778	15.633	Oct 2011	18.733	Oct 2012	-		18.733	0.000	138.144	
<b>Subtotal</b>			352.105	38.892		41.293		-		41.293	0.000	432.290	

**Remarks**  
Joint Program funds are distributed amongst the USA, USAF, USN, USMC, SOCOM, and USCG in support of NLW research and development efforts. Each Cost Category Item does not correlate to an individual project/effort. They fund multiple non-lethal projects/efforts that are incrementally funded throughout the fiscal year as each service identifies the project/effort requiring funding.

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
NLW Support Cost	WR	MCSC:Quantico, VA	10.871	-		-		-		-	0.000	10.871	
NLW Support Cost	WR	NSWC:Dahlgren, VA	12.998	1.400	Oct 2011	0.600	Oct 2012	-		0.600	0.000	14.998	
NLW Support Cost	Various	Various:Various	30.426	0.700	Oct 2011	3.101	Oct 2012	-		3.101	0.000	34.227	
<b>Subtotal</b>			54.295	2.100		3.701		-		3.701	0.000	60.096	





**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603851M: <i>Joint Non-Lethal Weapons Testing</i>	<b>PROJECT</b> 2319: <i>Non-Lethal Weapons</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2319</b>				
MISSION PAYLOAD MODULE (MPM) - MS B	2	2011	1	2012
MISSION PAYLOAD MODULE (MPM) - MS C	1	2012	1	2015



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	155.538	118.255	137.369	-	137.369	154.833	129.890	159.595	162.451	117.000	1,134.931
2329: <i>JPALS</i>	118.818	72.537	78.364	-	78.364	37.012	-	-	-	0.000	306.731
3228: <i>JPALS 1B</i>	36.720	45.718	59.005	-	59.005	117.821	129.890	159.595	162.451	117.000	828.200

**A. Mission Description and Budget Item Justification**

This program element provides for the development, integration, and testing of the Joint Precision Approach and Landing System (JPALS), which will be applicable to Department of Defense (DoD) Ground systems, DoD aircraft, and Navy and Coast Guard air capable surface ships. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night precision approach and landing capability. Operating environments include fixed or permanent ground facilities, tactical facilities, and shipboard. JPALS will be interoperable with civil landing systems. The JPALS program was established in response to the Joint Mission Needs Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 1994 and the Chief of Staff of the Air Force on 8 August 1994. The PALC MNS was validated by the Joint Requirements Oversight Council (JROC) on 29 August 1995. Army Joint Service participation was included in the 28 May 1996 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum, which also designated the Air Force as the Lead Service. In March 2004, the JPALS Overarching Integrated Program Team determined that the MNS should be converted to an Initial Capabilities Document (ICD). The JPALS ICD was approved by the JROC on 19 September 2005. On 16 March 2007 JROCM approved the JPALS Capability Development Document and designated the Navy as the Lead Service. The Analysis of Alternatives was finalized in 3Q FY2007. Milestone B was met 14 July 2008. At Milestone B, the Milestone Decision Authority separated Increment 1 into Inc 1A and Inc 1B.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	159.151	121.455	148.177	-	148.177
Current President's Budget	155.538	118.255	137.369	-	137.369
Total Adjustments	-3.613	-3.200	-10.808	-	-10.808
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.200			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.503	-			
• SBIR/STTR Transfer	-3.307	-			
• Program Adjustments	-	-	-11.012	-	-11.012
• Rate/Misc Adjustments	-	-	0.204	-	0.204
• Congressional General Reductions Adjustments	-0.809	-	-	-	-

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>

**Change Summary Explanation**

Technical: Not applicable.

Schedule: JPALS Inc 1A project schedule updated to reflect actual EDM deliveries in first quarter FY2011. MS C moved from 2nd quarter 2013 to 3rd quarter 2013 to accommodate a slide to CVN-77 availability for integrated test window. Project 3228 changed to include further breakdown of technical events, SRR 2 & SFR. JPALS Inc 1B project schedule updated to reflect delay in MS B (4 months).

Financial: Reduced FY 13 funding to properly phase planned execution.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 2329: <i>JPALS</i>
---	---	--------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2329: <i>JPALS</i>	118.818	72.537	78.364	-	78.364	37.012	-	-	-	0.000	306.731
Quantity of RDT&E Articles	1	6	3	0	3	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Joint Precision Approach and Landing System (JPALS) Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS on all air capable ships, in accordance with the JPALS Capability Development Document (CDD). This effort includes the build and test of Ship Global Positioning System/ Inertial Navigation System based precision approach and landing systems to replace obsolete AN/SPN-46 and AN/SPN-35 Systems. This requirement supports the JPALS Integration on CVN/LHA/LHD-class ships, DDG-1000 class ships (TACAN Replacement), establishes requirements for air integration, and provides critical enabling technology for Joint Strike Fighter, Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) and FIRESOULT Unmanned Air System (UAS). Includes risk reduction efforts and trade studies for other air capable ships.

JPALS Engineering Development Model (EDM) test articles will be delivered to support system development and demonstration, as follows:

- FY11 - 1 unit for Government Landing Systems Test Facility.
- FY12 - 6 EDMs for Shipboard Testing (CVN + LHD/LHA).
- FY13 - 3 LRIPs - CVN-69, LHD-1, and Government Ship Integration Lab (SIL)

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> JPALS Engineering and Manufacturing Development (EMD) Increment 1A - Shipboard</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS.</p> <p><b>FY 2011 Accomplishments:</b> Completed Critical Design Review and Aircraft Integration Guide (AIG) delivery and began Integrated Test (IT) 1-3.</p> <p><b>FY 2012 Plans:</b> Continue IT 1-3 and Operational Assessment test events.</p> <p><b>FY 2013 Plans:</b> Attain Milestone C and award LRIP contract.</p>	<p>115.649</p> <p>1</p>	<p>72.537</p> <p>6</p>	<p>78.364</p> <p>0</p>
<p><b>Title:</b> JPALS EMD Increment 1A - AIG</p> <p style="text-align: right;"><b>Articles:</b></p>	<p>3.169</p> <p>0</p>	<p>-</p>	<p>-</p>

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 2329: <i>JPALS</i>
---	---	--------------------------------------

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<b>Description:</b> Aircraft Integration Guide and associated derived requirements are the top level performance requirements for Aircraft Integration. This guide will serve as the integration document for air platforms.			
<b>FY 2011 Accomplishments:</b> Verified Air Integration requirements with Test A/C.			
<b>Accomplishments/Planned Programs Subtotals</b>	118.818	72.537	78.364

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/2867: <i>JPALS</i>	0.000	0.000	0.000	0.000	0.000	15.622	72.448	73.682	74.942	5.644	242.338

**D. Acquisition Strategy**

Technology Development phase was conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air) and multiple industry partners. This effort provided the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 System Development and Demonstration (SDD) phase development. In March 2007, overall joint program leadership transferred from the USAF to the USN. The JPALS 1A phase reached MS B on 17 July 2008 and the SDD phase development contract was awarded on 17 July 2008. Tasking consists of seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E deliverable products to the joint team. The SDD contract was decided after full and open competition. JPALS Increment 1A will be developed by the Navy with an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. As Lead Service, the Navy will manage the Joint Program to develop all JPALS increments. An updated JPALS Acquisition Strategy separated Increment 1 into two Increments (Inc 1A and Inc 1B). JPALS Increment 1A provides for development, integration, installation, and test of Sea-Based JPALS to meet IOC of all air capable ships, in accordance with the JPALS Capability Development Document. Additionally, this requirement supports the JPALS Integration on LHA/LHD-class ships and DDG-1000 class ships and provides critical enabling technology for Joint Strike Fighter and Navy UCAS.

**E. Performance Metrics**

MS B conducted 17 July 2008 and approval granted for program progression to Engineering and Manufacturing Development (EMD) phase. Preliminary Design Review conducted first quarter FY 2010. Critical Design Review conducted first quarter FY2011. EDM 2 Delivery completed fourth quarter FY2011. EDM 3 - 8 deliveries scheduled first to third quarters FY2012. MS C scheduled for third quarter FY2013.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 2329: <i>JPALS</i>
---	---	--------------------------------------

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development-TD	Various	Var:Var	105.504	-		-		-		-	0.000	105.504	105.504
Primary Hardware Development	C/CPAF	Raytheon:Fullerton, CA	224.435	40.519	Jan 2012	29.334	Jan 2013	-		29.334	7.990	302.278	302.278
Aircraft Integration-Non Specific	Various	Var:Var	2.052	-		-		-		-	0.970	3.022	3.022
Aircraft Integration-F/A-18E/F, EA-18G	Various	Boeing:St. Louis, MO	3.189	-		-		-		-	0.000	3.189	3.189
Aircraft integration-MH-60R/S	Various	Lockheed Martin:Owego, NY	2.972	-		-		-		-	0.000	2.972	2.972
Aircraft Integration-F-35 JSF	Various	Lockheed Martin:Fort Worth, TX	4.093	-		-		-		-	0.000	4.093	4.093
Aircraft Integration-MH-60R/S	Various	Sikorsky:Stratford, CT	0.662	-		-		-		-	0.000	0.662	0.662
Aircraft Integration-C-2A, E-2D	Various	Northrup Grumman:Bethpage, NY	0.895	-		-		-		-	0.000	0.895	0.895
Aircraft Integration-Systems Engineering	WR	NAWCAD:Pax River, MD	11.283	-		-		-		-	0.000	11.283	
Ship Integration	WR	NAWCAD:Pax River, MD	20.841	2.500	Dec 2011	1.141	Dec 2012	-		1.141	1.150	25.632	
Ship Integration - LRIP	WR	NAWCAD:Pax River, MD	-	-		2.740	Dec 2012	-		2.740	1.520	4.260	
LRIP1 Contract	TBD	Raytheon:Fullerton, CA	-	-		14.970	Jul 2013	-		14.970	0.000	14.970	
Award Fee	C/CPAF	Var:Var	8.068	2.000	Jan 2012	-		-		-	0.000	10.068	
<b>Subtotal</b>			383.994	45.019		48.185		-		48.185	11.630	488.828	

**Remarks**

The Primary Hardware Development contract with Raytheon is a combined CPAF and CPIF contract. Period 3 (7 April 2011 - 18 November 2011) paid out 3 January 2012. 88.4% of potential payout.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 2329: <i>JPALS</i>
---	---	--------------------------------------

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Development Support	Various	Var:Var	21.514	-		-		-		-	0.000	21.514	
Systems Engineering Support-EMD	WR	NAWCAD:Pax River, MD	31.453	8.080	Dec 2011	14.782	Dec 2012	-		14.782	6.367	60.682	
Integrated Logistics Support	WR	NAWCAD:Pax River, MD	11.091	3.302	Dec 2011	3.980	Dec 2012	-		3.980	2.670	21.043	
<b>Subtotal</b>			64.058	11.382		18.762		-		18.762	9.037	103.239	

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	29.154	5.020	Dec 2011	7.180	Dec 2012	-		7.180	6.140	47.494	
Operational Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	1.709	0.390	Dec 2011	0.510	Dec 2012	-		0.510	0.530	3.139	
LRIP Certification	WR	NAWCAD:Pax River, MD	-	-		-		-		-	1.960	1.960	
<b>Subtotal</b>			30.863	5.410		7.690		-		7.690	8.630	52.593	

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Government Engineering Support	WR	NAWCAD:Pax River, MD	44.814	7.400	Dec 2011	-		-		-	3.435	55.649	
Program Management Support	WR	NAWCAD:Pax River, MD	9.107	1.102	Dec 2011	2.301	Dec 2012	-		2.301	2.400	14.910	
PM Support-MSS	C/CPFF	Amelex:California, MD	7.425	1.764	Dec 2011	1.126	Dec 2012	-		1.126	0.820	11.135	11.135
Travel	WR	NAVAIR:Pax River, MD	2.438	0.460	Dec 2011	0.300	Dec 2012	-		0.300	1.060	4.258	
<b>Subtotal</b>			63.784	10.726		3.727		-		3.727	7.715	85.952	

**UNCLASSIFIED**

<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2013 Navy							<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>			<b>PROJECT</b> 2329: <i>JPALS</i>					
	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	542.699	72.537		78.364		-		78.364	37.012	730.612	

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 2329: <i>JPALS</i>
---	---	--------------------------------------

JPALS INC 1A	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>											MS C ▲				IOC ▲				FRPD ◆									
<b>Systems Development</b>																												
Reviews	CDR ■																											
EDM Deliveries	EDM Qty 1 ▼				EDM Qty 1 ▼	EDM Qty 2 ▼	EDM Qty 2 ▼	EDM Qty 2 ▼																				
					EMD																							
					JSF Ship Integration/Flight Test																							
<b>Test &amp; Evaluation</b>																												
					IT 1-3/OA				IT 4				IOT&E															
<b>Production Milestones</b>																												
	AIG Del ▼										LRIP Award ●												FRP Award ●					
<b>Deliveries</b>																												
											RDT&E LRIP Del Qty 3 ▼																	

2013PB - 0603860N - 2329



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 2329: <i>JPALS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>JPALS INC 1A</b>				
Acquisition Milestones: MS C	3	2013	3	2013
Acquisition Milestones: IOC	4	2014	4	2014
Acquisition Milestones: Full Rate Production Decision	3	2015	3	2015
Systems Development: Engineering and Manufacturing Development	1	2011	2	2013
Systems Development: Reviews: Critical Design Review (CDR)	1	2011	1	2011
Systems Development: EDM Deliveries: Engineering Development Model (EDM) 1 Delivery	1	2011	1	2011
Systems Development: EDM Deliveries: EDM 2 Delivery	4	2011	4	2011
Systems Development: EDM Deliveries: EDM 3 Delivery	1	2012	1	2012
Systems Development: EDM Deliveries: EDM 5 Delivery	2	2012	2	2012
Systems Development: EDM Deliveries: EDM 7 Delivery	3	2012	3	2012
Systems Development: EDM Deliveries: JSF Ship Integration / Flight Test	1	2012	3	2014
Test & Evaluation: Integrated Test (IT)-1-3/Operational Assessment (OA)	4	2011	2	2013
Test & Evaluation: IT-4/IT-C1	3	2013	4	2013
Test & Evaluation: Initial Operational Test and Evaluation (IOT&E)	1	2014	4	2014
Production Milestones: Aircraft Integration Guide (AIG) Delivery	1	2011	1	2011
Production Milestones: RDT&E Low Rate Initial Production (LRIP) Contract Award	3	2013	3	2013
Production Milestones: Full Rate Production (FRP) Contract Award	3	2015	3	2015
Deliveries: RDT&E LRIP Delivery Qty 3	4	2013	4	2013

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 3228: <i>JPALS 1B</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3228: <i>JPALS 1B</i>	36.720	45.718	59.005	-	59.005	117.821	129.890	159.595	162.451	117.000	828.200
Quantity of RDT&E Articles	0	0	4	0	4	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Joint Precision Approach and Landing System (JPALS) Increment 1B, beginning in FY10, provides for integration and testing into the avionics of the CVN/LHA/LHD Air Wings, and DDG 1000 Air Detachments for all USN Seabased Aircraft, including but not limited to: MH-60R/S, F/A-18E/F, EA-18G, E-2D, and C-2A. Additionally, trade studies and risk reduction activities will be pursued on additional sea based USN/USMC aircraft.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> Lead Platform Integration</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> This effort includes development, integration, and testing of the MH-60R/S. JPALS Inc 1B provides the Navy with aircraft that are JPALS capable in 2015 and out in the CVN/LHA/LHD Air Wings, and the DDG-1000 Air Detachment.</p> <p><b>FY 2011 Accomplishments:</b> Initial design efforts for JPALS on MH-60R/S. Conducted SRR-2 and System Functional Review (SFR).</p> <p><b>FY 2012 Plans:</b> Complete Milestone B JPALS MH-60R/S Preliminary Design Review (PDR).</p> <p><b>FY 2013 Plans:</b> Conduct Critical Design Review (CDR).</p>	27.944 0	27.302 0	36.931 4
<p><b>Title:</b> Follow-on Platform Integration</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> This effort includes development, integration, and testing of the F/A-18E/F, EA-18G, E-2D, and C-2A, providing the Navy with aircraft that are JPALS capable in 2019 and out. Additionally, trade studies and risk reduction activities will be pursued on additional sea based USN/USMC aircraft.</p> <p><b>FY 2011 Accomplishments:</b> Continued JPALS trade studies, risk reduction, and design activities for applicable CVN aircraft, developed platform specifications for F/A-18E/F and EA-18G.</p> <p><b>FY 2012 Plans:</b></p>	8.776 0	18.416 0	22.074 0

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 3228: <i>JPALS 1B</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Continue JPALS trade studies, risk reduction, and design activities for applicable CVN aircraft. JPALS F/A-18E/F and EA-18G SRR-2.			
<b><i>FY 2013 Plans:</i></b> Continue JPALS trade studies, risk reduction, and design activities for applicable CVN aircraft and Multi Platform Avionics. JPALS F/A-18E/F and EA-18G System Functional Review(SFR). Conduct F/A-18E/F and EA-18G Preliminary Design Review (PDR).			
<b>Accomplishments/Planned Programs Subtotals</b>	36.720	45.718	59.005

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

<u>Line Item</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u> <u>Base</u>	<u>FY 2013</u> <u>OCO</u>	<u>FY 2013</u> <u>Total</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APN/0573: <i>JPALS</i>	0.000	0.000	0.000	0.000	0.000	46.383	115.017	197.119	200.443	2,426.400	2,985.362

**D. Acquisition Strategy**

JPALS Technology Development phase was conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air), and multiple industry partners. This effort provided the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 System Development and Demonstration (SDD) phase development. As Lead Service, the Navy will manage the Joint Program to develop all JPALS increments. The JPALS capability will be incrementally acquired based on technology maturity and service needs. An updated JPALS Acquisition Strategy separates Increment 1 into two Increments (Inc 1A and Inc 1B). JPALS Increment 1A provides for development, integration, installation, and test of Sea Based JPALS. JPALS Increment 1B provides for integration and testing into the avionics of the CVN/LHA/LHD Air Wings, and DDG 1000 Air Detachments. JPALS Inc 1B will consist of the procurement of airborne systems that are modifications to original equipment manufacturer aircraft and integration to existing avionics.

**E. Performance Metrics**

Milestone B scheduled for 4Q12/1Q13. MH-60 R/S CDR scheduled for 2nd quarter FY2013.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 3228: <i>JPALS 1B</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Aircraft Integration-Non Specific	Various	Var:Var	11.894	0.500	Jan 2012	0.590	Mar 2013	-		0.590	5.373	18.357	18.357
Aircraft Integration-multi-Platform Avionics	Various	TBD:Not Specified	-	-		1.603	Jun 2013	-		1.603	57.036	58.639	58.639
Aircraft Integration-F/A-18E/F & EA-18G	SS/CPIF	Boeing:St. Louis, MO	19.788	7.950	Jan 2012	13.811	Jun 2013	-		13.811	167.043	208.592	208.592
Aircraft Integration-MH-60R/S	SS/CPIF	Lockheed Martin:Owego, NY	7.399	17.253	Jul 2012	15.576	Dec 2012	-		15.576	134.006	174.234	174.234
Aircraft Integration-F/A-18 E/F & EA-18G	WR	NAWCAD:China Lake, CA	0.150	-		1.588	Jun 2013	-		1.588	44.287	46.025	
Aircraft Integration-MH-60R/S	SS/CPIF	Sikorsky:Stratford, CT	0.600	8.298	Jul 2012	5.774	Dec 2012	-		5.774	57.874	72.546	72.546
Aircraft Integration-E-2D	SS/CPFF	Northrop Grumman:Bethpage, NY	0.600	0.600	Jan 2012	0.406	Jan 2013	-		0.406	150.084	151.690	151.690
Aircraft Integration-C-2A	SS/FFP	Rockwell Collins:Cedar Rapids, IA	-	0.300	Jan 2012	0.074	Jan 2013	-		0.074	21.945	22.319	22.319
Aircraft Integration-C-2A	SS/FFP	Honeywell:Clearwater, FL	-	-		0.049	Jan 2013	-		0.049	23.669	23.718	23.718
Aircraft Integration-C-2A	WR	SSC PAC:San Diego, CA	-	-		0.049	Jan 2013	-		0.049	10.173	10.222	
Aircraft Integration-C-2A	WR	FRC SW:San Diego, CA	-	-		0.074	Jan 2013	-		0.074	36.557	36.631	
<b>Subtotal</b>			40.431	34.901		39.594		-		39.594	708.047	822.973	

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Integrated Logistics Support	WR	NAWCAD:Pax River, MD	0.845	1.150	Nov 2011	0.917	Dec 2012	-		0.917	6.595	9.507	
Engineering Support	WR	NAWCAD:Pax River, MD	-	3.150	Nov 2011	11.729	Dec 2012	-		11.729	81.054	95.933	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 3228: <i>JPALS 1B</i>
---	---	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			0.845	4.300		12.646		-		12.646	87.649	105.440	

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	3.872	0.460	Nov 2011	2.175	Dec 2012	-		2.175	95.651	102.158	
Operational Test & Evaluation	WR	COMOPTEVFOR:Norfolk, VA	-	-		-		-		-	20.707	20.707	
<b>Subtotal</b>			3.872	0.460		2.175		-		2.175	116.358	122.865	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Support	WR	NAWCAD:Pax River, MD	1.793	4.437	Nov 2011	-		-		-	0.000	6.230	
PM Support	WR	NAWCAD:Pax River, MD	0.546	1.150	Nov 2011	4.037	Dec 2012	-		4.037	29.016	34.749	
PM Support-MSS	C/CPFF	Amelex:California, MD	-	0.470	Jan 2012	0.553	Jan 2013	-		0.553	2.638	3.661	3.661
<b>Subtotal</b>			2.339	6.057		4.590		-		4.590	31.654	44.640	

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			47.487	45.718		59.005		-		59.005	943.708	1,095.918	

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy**

**DATE: February 2012**

**APPROPRIATION/BUDGET ACTIVITY**

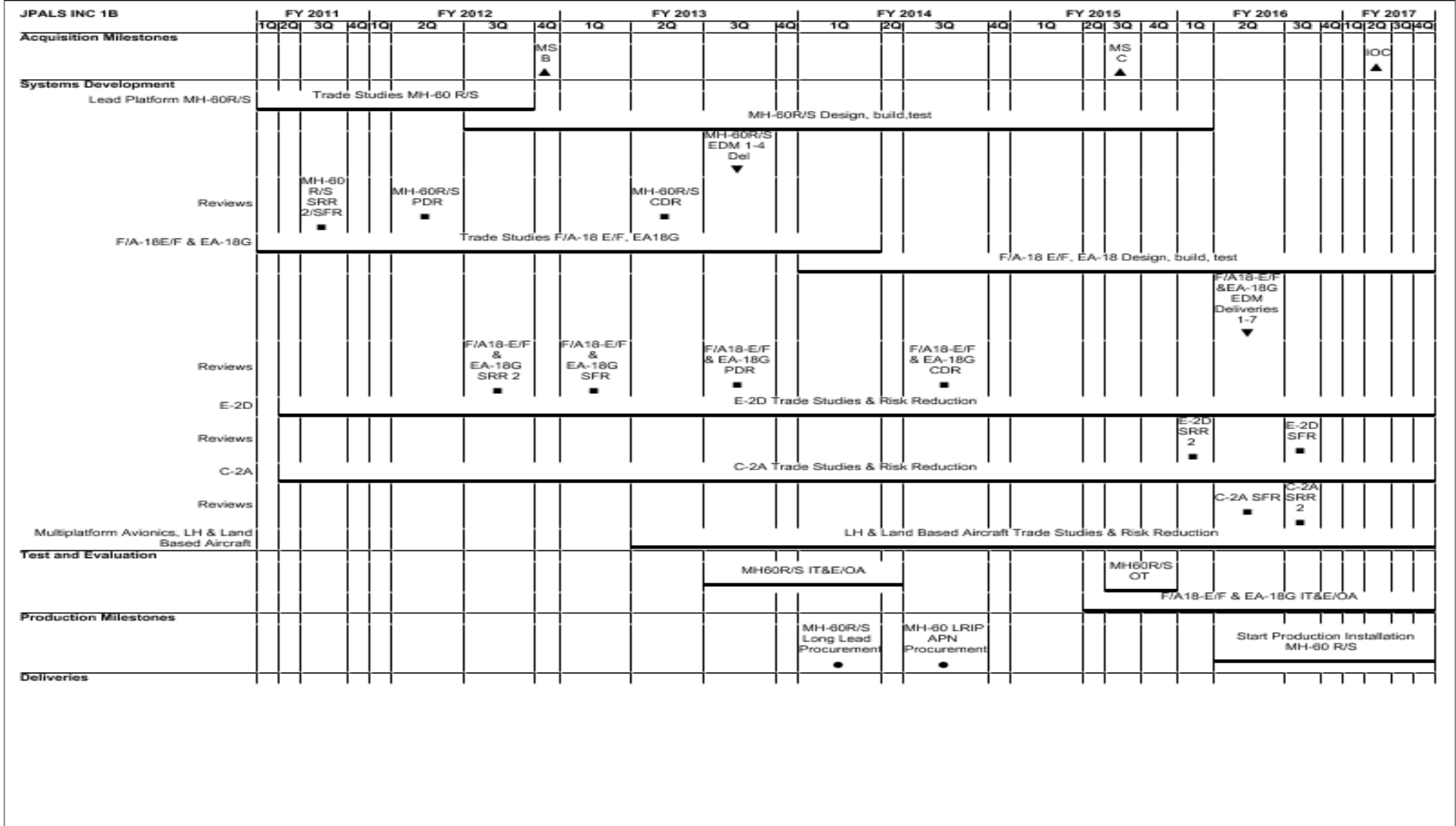
1319: *Research, Development, Test & Evaluation, Navy*  
 BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**

PE 0603860N: *JT Precision Approach & Ldg Sys*

**PROJECT**

3228: *JPALS 1B*



UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	3228: <i>JPALS 1B</i>

																		MH-60R/S LRIP APN 1-2 Del ▼									
2013PB - 0603860N - 3228																											

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 3228: <i>JPALS 1B</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>JPALS INC 1B</b>				
Acquisition Milestones: Milestone B	4	2012	4	2012
Acquisition Milestones: Milestone C	3	2015	3	2015
Acquisition Milestones: Initial Operational Capability (IOC)	2	2017	2	2017
Systems Development: Lead Platform MH-60R/S: Trade Studies MH-60 R/S	1	2011	3	2012
Systems Development: Lead Platform MH-60R/S: MH-60R/S Design, build, test	3	2012	1	2016
Systems Development: Lead Platform MH-60R/S: MH-60R/S Engineering Development Model (EDM) Deliveries 1-4	3	2013	3	2013
Systems Development: Reviews: MH-60R/S SRR 2 / System Functional Review (SFR)	3	2011	3	2011
Systems Development: Reviews: MH-60R/S Preliminary Design Review (PDR)	2	2012	2	2012
Systems Development: Reviews: MH-60R/S Critical Design Review (CDR)	2	2013	2	2013
Systems Development: F/A-18E/F & EA-18G: Trade Studies F/A-18E/F, EA-18G	1	2011	1	2014
Systems Development: F/A-18E/F & EA-18G: F/A-18 E/F, EA-18 Design, build, test	1	2014	4	2017
Systems Development: F/A-18E/F & EA-18G: F/A18-E/F &EA-18G EDM Deliveries 1-7	2	2016	2	2016
Systems Development: Reviews: F/A18-E/F & EA-18G SRR 2	3	2012	3	2012
Systems Development: Reviews: F/A18-E/F & EA-18G PDR	3	2013	3	2013
Systems Development: Reviews: F/A18-E/F & EA-18G CDR	3	2014	3	2014
Systems Development: Reviews: F/A-18-E/F & EA-18G SFR	1	2013	1	2013
Systems Development: E-2D: E-2D Trade Studies & Risk Reduction	2	2011	4	2017
Systems Development: Reviews: E-2D SRR 2	1	2016	1	2016
Systems Development: Reviews: E-2D SFR	3	2016	3	2016
Systems Development: C-2A: C-2A Trade Studies & Risk Reduction	2	2011	4	2017



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603860N: <i>JT Precision Approach &amp; Ldg Sys</i>	<b>PROJECT</b> 3228: <i>JPALS 1B</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: Reviews: C-2A SRR 2	3	2016	3	2016
Systems Development: Reviews: C-2A SFR	2	2016	2	2016
Systems Development: Multiplatform Avionics, LH & Land Based Aircraft: Multiplatform Avionics, LH & Land Based Aircraft Trade Studies & Risk Reduction	2	2013	4	2017
Test and Evaluation: MH-60R/S Initial Test and Evaluation (IT&E)/Operational Assessment (OA)	3	2013	2	2014
Test and Evaluation: MH-60R/S Operational Testing (OT)	3	2015	4	2015
Test and Evaluation: F/A18-E/F & EA-18G IT&E/OA	2	2015	4	2017
Production Milestones: MH-60R/S Long Lead Procurement	1	2014	1	2014
Production Milestones: MH-60R/S Low Rate Initial Production (LRIP) APN Procurement	3	2014	3	2014
Production Milestones: Start Production Installation MH-60 R/S	2	2016	4	2017
Deliveries: LRIP APN Deliveries 1-2	1	2015	1	2015

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603889N: <i>Counterdrug RDT&amp;E Projects</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	8.700	-	-	-	-	-	-	-	-	0.000	8.700
2219: <i>Counterdrug RDTE Support</i>	8.700	-	-	-	-	-	-	-	-	0.000	8.700

**A. Mission Description and Budget Item Justification**

The Counterdrug RDTE Projects Program mission is to develop and deploy technology that disrupts, deters, and denies the flow of drugs, people, information, money, and weapons related to narcoterrorism.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	-	-	-	-	-
Current President's Budget	8.700	-	-	-	-
Total Adjustments	8.700	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.966	-			
• SBIR/STTR Transfer	-0.266	-			

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603889N: <i>Counterdrug RDT&amp;E Projects</i>	<b>PROJECT</b> 2219: <i>Counterdrug RDTE Support</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2219: <i>Counterdrug RDTE Support</i>	8.700	-	-	-	-	-	-	-	-	0.000	8.700
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Counterdrug RDT&E mission is to develop and deploy technology that disrupts, deters, and denies the flow of drugs, people, information, money and weapons related to narcoterrorism.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> New Accomplishment/Planned Program Entry	8.700	-	-
<b>Articles:</b>	0		
<b>FY 2011 Accomplishments:</b> N/A			
<b>Accomplishments/Planned Programs Subtotals</b>	8.700	-	-

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

N/A

**D. Acquisition Strategy**

Competitive procurement through RDT&E Indefinite Delivery, Indefinite Quantity (IDIQ) Contract

**E. Performance Metrics**

The CNTPO program goal is to identify and respond to R&D requirements that support ongoing counter narcoterrorism missions being conducted by the Department of Defense, other Federal agencies, partner nations and State and local authorities. CNTPO will conduct studies, analyses and experimentation in both laboratory and non-laboratory environments to support the DoD strategy for disrupting, deterring, and denying the flow of drugs, people, information, money and weapons related to illegal drug trafficking and narcoterrorism.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603925N: <i>Directed Energy and Electric Weapon System</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	7.959	-	-	-	-	-	-	-	-	0.000	7.959
9999: <i>Congressional Adds</i>	7.959	-	-	-	-	-	-	-	-	0.000	7.959

**A. Mission Description and Budget Item Justification**

In accordance with NAVSEA Notice 5400, Ser 09B/240, Subj: ESTABLISHMENT OF THE NAVY DIRECTED ENERGY (DE) WEAPONS PROGRAM OFFICE (PMS 405), dated 4 Jan 02 and NAVSEA 5400.101, Ser SEA 06/058, Subj: DIRECTED ENERGY AND ELECTRIC WEAPONS PROGRAM OFFICE (PMS 405) CHARTER, dated 21 Jul 04 - COMNAVSEASYS COM (PMS 405) was assigned as the single Point of Contact for matters related to Directed Energy and Electric Weapon Systems development and acquisition initiation for the Navy and for those matters being coordinated with other Federal agencies and military services. The Naval Directed Energy and Electric Weapon Systems Program Office's (PMS 405) mission is to transition technology from the laboratory to prototype/advanced development/test for operational development and use. This will change the way the Navy fights in the 21st century by providing the war fighter with additional tools to fight today's and tomorrow's wars. This requires the effective management of Technology Development (BA-4) initiatives into System Development and Demonstration. PMS 405 will manage development of Directed Energy and Electric Weapon Systems onboard future naval surface ships that incorporate: Weapons Grade High Energy Lasers, Free Electron Lasers (Megawatt class), Electromagnetic Rail Gun (EMRG) Weapon Systems, High Power Microwave Weapon/Sensor Systems, and other systems/capabilities.

In FY 11, \$7,959K is provided under Project Unit C207 to continue to develop and test a surface ship based Directed Energy (DE) Weapon System that provides a critical Counter-Electro Optics (EO)/Infra Red (IR) sensor capability to prevent identification of U.S. Forces by enemy Intelligence, Surveillance, Reconnaissance (ISR) through jamming and/or destruction of the sensor.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603925N: <i>Directed Energy and Electric Weapon System</i>
---	--

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	-	-	-	-	-
Current President's Budget	7.959	-	-	-	-
Total Adjustments	7.959	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Congressional General Reductions Adjustments	-0.041	-	-	-	-
• Congressional Add Adjustments	8.000	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

    Congressional Add: *Directed Energy Development and Test*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	<b>FY 2011</b>	<b>FY 2012</b>
	7.959	-
Congressional Add Subtotals for Project: 9999	7.959	-
Congressional Add Totals for all Projects	7.959	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	7.959	-	-	-	-	-	-	-	-	0.000	7.959
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

C207 - Directed Energy Development and Test - Continue to develop and test a surface ship based Directed Energy (DE) Weapon System that provides a critical Counter-Electro Optics (EO)/Infra Red (IR) sensor capability to prevent identification of U.S. Forces by enemy Intelligence, Surveillance, Reconnaissance (ISR) through jamming and/or destruction of the sensor. This system also provides "zero time of flight" asymmetric hard-kill defensive capability against Unmanned Aerial Vehicles (UAVs)/rockets/artillery/mortars, and small boat/swarm disruption, with an "unlimited magazine". It also provides defeat/soft-kill of tactical EO/IR sensors associated with Fire Control and Periscope optics.

**B. Accomplishments/Planned Programs (\$ in Millions)**

<b>Congressional Add:</b> Directed Energy Development and Test	FY 2011	FY 2012
	7.959	-
<b>FY 2011 Accomplishments:</b> Engineering and testing of the active stabilization of the LaWS Beam Director, Tracking Mount, and initial Predictive Avoidance Safety System (PASS) on a moving platform during the Fleet's Trident Warrior 11 Sea Trial Initiative (June 2011); system engineering of the Beam Director and Beam Combiner required for shipboard test/demonstration during the Fleet's Trident Warrior 12 Sea Trial Initiative (June 2012); and development/engineering of the LaWS prototype including continued development and integration of the PASS capability, tracking capability/algorithm development and integration, and laser/optics engineering/development/test. This effort will increase the capability developed as a result of the FY 2010 Laser Weapon System (LaWS) prototype development and test/demonstration.		
<b>Congressional Adds Subtotals</b>	7.959	-

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

N/A

**D. Acquisition Strategy**

Government Field Activities: Technology development and demonstration/test of capabilities for designated Directed Energy and Electric Weapon System Components, subsystems, and system(s). Program Office approved design, development, and demonstration/test efforts.

Non-Government Activities: Technology development and demonstration/test of capabilities for designated Directed Energy and Electric Weapon System components, subsystems, and system(s). Program Office approved design, development, and demonstration/test efforts.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>

**E. Performance Metrics**

Quarterly Reviews, Monthly Reports.



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	--	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	Various	NSWC DD/NAVSEA/ Penn State:Washington D.C./Freeport, PA	5.384	-		-		-		-	0.000	5.384	
Software Development	WR	NSWC DD/ Crane:Dahlgren, VA/ Crane, IN	0.470	-		-		-		-	0.000	0.470	
<b>Subtotal</b>			5.854	-		-		-		-	0.000	5.854	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering	Various	NSWC Crane/PHD/ NAVSEA:Crane, IN/ Port Hueneme, CA/ Washington, D.C.	1.505	-		-		-		-	0.000	1.505	
<b>Subtotal</b>			1.505	-		-		-		-	0.000	1.505	

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NSWC DD:Dahlgren, VA	0.500	-		-		-		-	0.000	0.500	
<b>Subtotal</b>			0.500	-		-		-		-	0.000	0.500	





**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0603925N: <i>Directed Energy and Electric Weapon System</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	--	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 9999</b>				
DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEM: C207 - Field Evaluation	4	2011	3	2012
DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEM: C207 - Prototype System Development	4	2011	4	2012

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	50.166	64.097	73.934	-	73.934	37.609	38.335	38.939	39.696	250.000	592.776
3302: <i>JATAS</i>	50.166	64.097	69.535	-	69.535	30.921	1.700	-	-	0.000	216.419
3304: <i>CIRCM</i>	-	-	4.399	-	4.399	6.688	36.635	38.939	39.696	250.000	376.357

**A. Mission Description and Budget Item Justification**

This element includes development of electronic warfare systems for the United States Navy and United States Marine Corps assault and strike aircraft. This includes the development and testing of advanced Infrared Countermeasures systems for emerging threats and emergency contingencies. Realignment of project units from Tactical Aircraft Directed Infrared Countermeasures to Joint and Allied Threat Awareness System began in FY 2011. Common Infrared Countermeasures is a new start for the Navy with efforts to begin in FY 2013.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	51.693	64.107	61.930	-	61.930
Current President's Budget	50.166	64.097	73.934	-	73.934
Total Adjustments	-1.527	-0.010	12.004	-	12.004
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.264	-			
• Program Adjustments	-	-	11.993	-	11.993
• Rate/Misc Adjustments	-	-	0.011	-	0.011
• Congressional General Reductions Adjustments	-0.263	-	-	-	-

**Change Summary Explanation**

Schedule: The addition of Milestone B in 3rd quarter of FY2011 reflects the Milestone Decision Authority approval for Joint and Allied Threat Awareness System (JATAS) to proceed to the Engineering and Manufacturing Development (EMD) phase of the program. The shift of the EMD contract award from the 3rd quarter to 4th quarter of FY2011 reflects the movement of contract award from June to July 2011.

Technical: N/A

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3302: <i>JATAS</i>
---	--	--------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3302: <i>JATAS</i>	50.166	64.097	69.535	-	69.535	30.921	1.700	-	-	0.000	216.419
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The Joint and Allied Threat Awareness System (JATAS) is required to provide assault aircraft with a reliable surface-to-air Infrared (IR) missile/Hostile Fire Indication (HFI) threat detection system. This capability must provide accurate and timely warning in all flight regimes, ambient light conditions, clutter backgrounds and weather conditions. It must be capable of providing countermeasure cueing to flares and/or a Directional Infrared Countermeasures (DIRCM). JATAS will enable assault Aircraft Survivability Equipment to detect and provide countermeasure cueing to current and emerging threats. Lead Department of the Navy platform for this capability is the MV-22. Project was previously funded by the Tactical Aircraft Directed Infrared Countermeasure (TADIRCM) project unit. JATAS has been designated an ACAT IC program.

New PU 3302 JATAS began in FY 2011. Prior year efforts (FY 2008 - FY 2010) were funded via PU 3040 TADIRCM.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> JATAS Technology Demonstration (TD)</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> Complete TD phase and program support for JATAS. Program will provide assault aircraft with a reliable surface-to-air IR missile/HFI threat detection system.</p> <p><b>FY 2011 Accomplishments:</b> FY 2011 Base: Complete the execution of the JATAS TD phase efforts including down select to the Engineering &amp; Manufacturing Development (EMD) vendor. Plan to conduct Preliminary Design Review, complete TD phase contract, and select vendor for the EMD contract.</p>	26.106 0	-	-
<p><b>Title:</b> JATAS EMD</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> Enter EMD phase and provide program support for EMD phase.</p> <p><b>FY 2011 Accomplishments:</b> Execute an EMD contract award to begin development of JATAS and conduct an integrated baseline review. Tasks to be completed include Integrated Baseline Review.</p> <p><b>FY 2012 Plans:</b></p>	18.300 0	50.122 0	57.422 0

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3302: JATAS
---	--	-------------------------------

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Conduct Critical Design Review (CDR), Contractor Test Readiness Review (TRR), and begin delivery of Engineering Development Model units to support contractor test and development.			
<b>FY 2013 Plans:</b> Conduct Government TRR, Maintenance Demonstration, and Integrated Test & Evaluation (IT&E).			
<b>Title:</b> Joint and Allied Threat Awareness System (JATAS) Integration	5.760	13.975	12.113
<b>Articles:</b>	0	0	0
<b>Description:</b> Provide platform integration support and JATAS A-kit development.			
<b>FY 2011 Accomplishments:</b> Continuation of aircraft integration efforts with the JATAS lead platform and execute A-kit development contract.			
<b>FY 2012 Plans:</b> Conduct A-kit Preliminary Design Review and CDR.			
<b>FY 2013 Plans:</b> Complete development of A-kits to support IT&E.			
<b>Accomplishments/Planned Programs Subtotals</b>	50.166	64.097	69.535

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

Line Item	FY 2011	FY 2012	FY 2013			FY 2014	FY 2015	FY 2016	FY 2017	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APN/057600: JATAS	0.000	0.000	0.000	0.000	0.000	17.611	17.587	19.581	109.616	1,009.742	1,174.137

**D. Acquisition Strategy**

A JATAS Capabilities Development Document (CDD) was approved in a Joint Requirements Oversight Council Memorandum dated 18 February 2011. Per the CDD, the JATAS will be an advanced Missile Warning System (MWS) designed to replace the legacy AN/AAR-47(V) MWS and increase the survivability of Marine Corps and Navy tilt-rotor and rotary wing aircraft against infrared threats. Additionally, the system will provide aircrew with warnings of laser-enabled weapon systems such as range finders, illuminators, and beam riders. The JATAS will interface with existing AN/ALE-47 Countermeasures Dispensing System, existing AN/APR-39 Radar Warning Receiver, existing Department of the Navy Large Aircraft Infrared Countermeasure system, and other compatible Directed Infrared Countermeasures systems as part of an integrated electronic countermeasures response to attacking infrared missiles. Additionally, the JATAS will be upgradeable to provide Hostile Fire Indication (HFI) of small arms, rockets and other unguided threats and provide situational awareness in Visually Degraded Environments. Per the CDD, JATAS will be developed in two increments. Increment I (Phase I) includes the missile and laser warning capabilities and cueing of countermeasure systems. Increment I (Phase II) will add HFI capability against Type I and III threats during the Engineering and Manufacturing Development phase of this program. Increment II, when future technology advancements and funding permit, will develop HFI capability against Type II threats. The Joint and Allied Threat Awareness System (JATAS) Engineering

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	3302: JATAS

and Manufacturing Development (EMD) phase will be executed via a fixed price incentive firm (FPIF) contract over an approximate 48-month period of performance, with one FPIF option for the low-rate initial production lot and firm-fixed price options for the first seven full-rate production lots. A JATAS Technology Development phase contract was awarded in FY2009 and the EMD contract was awarded in 4th Quarter FY2011. JATAS Initial Operational Capability is planned for FY2015.

**E. Performance Metrics**

JATAS EMD contract awarded in fourth quarter FY 2011.



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3302: <i>JATAS</i>
---	--	--------------------------------------

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hdw Dev JATAS I	C/CPIF	ATK:Orlando, FL	8.209	-		-		-		-	0.000	8.209	8.209
Primary Hdw Dev JATAS I	C/CPIF	LM:Woodland Hills, CA	6.130	-		-		-		-	0.000	6.130	6.130
Primary Hdw Dev JATAS II	C/FPIF	ATK:Orlando, FL	18.300	37.990	Nov 2011	35.518	Nov 2012	-		35.518	7.508	99.316	99.316
Aircraft Integration JATAS II	C/CPIF	Bell-Boeing:Fort Worth, TX	5.760	11.609	Jun 2012	12.141	Jun 2013	-		12.141	1.585	31.095	31.095
Modeling/Simulation JATAS	WR	NAWCWD:Point Mugu, CA	0.355	-		0.071	Dec 2012	-		0.071	0.000	0.426	
Sys Eng Govt JATAS	WR	NAWCAD:Pax River, MD	2.224	2.644	Dec 2011	5.084	Dec 2012	-		5.084	3.138	13.090	
Sys Eng Govt JATAS	WR	FRC:Jacksonville, FL	0.093	0.270	Dec 2011	-		-		-	0.000	0.363	
<b>Subtotal</b>			41.071	52.513		52.814		-		52.814	12.231	158.629	

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Configuration Mgmt JATAS	WR	NAWCAD:Pax River, MD	-	0.200	Dec 2011	-		-		-	0.000	0.200	
Integrated Logistics JATAS I	WR	Various:Various	0.727	0.256	Dec 2011	0.628	Dec 2012	-		0.628	0.105	1.716	
Integrated Logistics JATAS II	C/CPFF	Wyle Labs:Huntsville, AL	0.473	0.355	Jun 2012	0.253	Jun 2013	-		0.253	0.000	1.081	1.081
Sw Dev JATAS	WR	NAWCWD:Point Mugu, CA	0.490	0.553	Dec 2011	2.326	Dec 2012	-		2.326	1.545	4.914	
<b>Subtotal</b>			1.690	1.364		3.207		-		3.207	1.650	7.911	

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental T&E JATAS	WR	Various:Various	-	2.169	Dec 2011	9.162	Dec 2012	-		9.162	3.804	15.135	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3302: <i>JATAS</i>
---	--	--------------------------------------

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational T&E JATAS	WR	COTF:Norfolk, VA	0.200	0.256	Jan 2012	0.310	Jan 2013	-		0.310	11.088	11.854	
ENG & Eval JATAS	C/CPFF	TBD:TBD	-	0.367	Dec 2011	0.127	Dec 2012	-		0.127	0.406	0.900	0.900
ENG & Eval Govt JATAS	WR	Various:Various	1.534	0.893	Jan 2012	0.310	Jan 2013	-		0.310	1.056	3.793	
Test Assets JATAS	WR	NAWCWD:China Lake, CA	-	2.374	Jan 2012	-		-		-	0.000	2.374	
<b>Subtotal</b>			1.734	6.059		9.909		-		9.909	16.354	34.056	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Eng Supt JATAS	C/CPFF	Various:Various	1.210	0.331	Dec 2011	0.269	Dec 2012	-		0.269	0.864	2.674	2.674
Govt Eng Supt JATAS	WR	NAWCWD:Point Mugu, CA	2.006	1.842	Dec 2011	2.754	Dec 2012	-		2.754	1.446	8.048	
Program Mgmt Supt JATAS	C/CPFF	Various:Various	1.200	0.880	Dec 2011	-		-		-	0.000	2.080	2.080
Travel JATAS	WR	NAVAIR:Various	0.150	0.150	Dec 2011	0.150	Dec 2012	-		0.150	0.000	0.450	
Direct Support Costs JATAS	WR	Various:Various	0.016	-		-		-		-	0.000	0.016	
Cost Analysis Supt JATAS	WR	NAWCAD:Pax River, MD	0.895	0.830	Dec 2011	0.432	Dec 2012	-		0.432	0.076	2.233	
NAWCAD Pax Supt JATAS	WR	NAWCAD:Pax River, MD	0.194	0.128	Dec 2011	-		-		-	0.000	0.322	
<b>Subtotal</b>			5.671	4.161		3.605		-		3.605	2.386	15.823	

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		50.166	64.097	69.535	-	69.535	32.621	216.419

**Remarks**



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3302: <i>JATAS</i>
---	--	--------------------------------------

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>JATAS</b>				
Acquisition Milestones: Milestones: Milestone B	3	2011	3	2011
Acquisition Milestones: Milestones: Capabilities Production Document (CPD)	3	2013	3	2013
Acquisition Milestones: Milestones: Milestone C	1	2014	1	2014
Acquisition Milestones: Milestones: Beyond Low-Rate Initial Production Report (BLRIP)	1	2015	1	2015
Acquisition Milestones: Milestones: Joint Allied Threat Awareness System (JATAS) Initial Operational Capability (IOC)	3	2015	3	2015
Systems Development: Technology Readiness Assessment for Milestone C (TRA MC)	3	2013	4	2013
Systems Development: Functional Configuration Audit (FCA)	4	2013	4	2013
Systems Development: Physical Configuration Audit (PCA)	1	2015	1	2015
Systems Development: Reviews: Integrated Baseline Review 2 IBR	1	2012	1	2012
Systems Development: Reviews: Preliminary Design Review (PDR) - A-kit	1	2012	1	2012
Systems Development: Reviews: Critical Design Review (CDR)	2	2012	2	2012
Systems Development: Reviews: Critical Design Review (CDR) - A-kit	3	2012	3	2012
Systems Development: Reviews: Test Readiness Review - Contractor (TRR Cont)	3	2012	3	2012
Systems Development: Reviews: Test Readiness Review - Government (TRR Govt)	1	2013	1	2013
Systems Development: Reviews: Flight Readiness Review (FRR)	1	2013	1	2013
Systems Development: Reviews: Production Readiness Review (PRR)	4	2013	4	2013
Systems Development: Reviews: Operational Test Readiness Review (OTRR)	2	2014	2	2014
Test & Evaluation: Contractor Test and Evaluation (CT+E)	3	2012	2	2013
Test & Evaluation: OT Report 1 (OT)	1	2014	1	2014
Test & Evaluation: Independent Operational Test and Evaluation (IOT&E)	3	2014	3	2014

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3302: <i>JATAS</i>
---	--	--------------------------------------

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test & Evaluation: OT Report 2 (OT)	1	2015	1	2015
Test & Evaluation: Technical Evaluation: Initial Test and Evaluation (IT&E)	1	2013	2	2014
Test & Evaluation: Operational Evaluation: Operational Assessment (OA)	4	2013	4	2013
Production Milestones: Contract Awards: Engineering & Manufacturing Development Award (EMD)	4	2011	4	2011
Production Milestones: Contract Awards: Low-Rate Initial Production (LRIP) I (APN)	1	2014	1	2014
Production Milestones: Contract Awards: Full Rate Production (FRP) I Award	2	2015	2	2015
Production Milestones: Contract Awards: Full Rate Production (FRP) 2 Award	2	2016	2	2016
Deliveries: Engineering Development Model (EDM) Deliveries (2)	3	2012	3	2012
Deliveries: Engineering Development Model (EDM) Deliveries (9)	4	2012	1	2013
Deliveries: Engineering Development Model (EDM) Deliveries (3)	1	2014	1	2014
Deliveries: Low-Rate Initial Production Deliveries	1	2015	2	2016
Deliveries: Full Rate Production (FRP) I Deliveries	2	2016	2	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3304: <i>CIRCM</i>
---	--	--------------------------------------

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3304: <i>CIRCM</i>	-	-	4.399	-	4.399	6.688	36.635	38.939	39.696	250.000	376.357
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Common Infrared Countermeasures (CIRCM) is a new start for the Navy with efforts to begin in FY 2013. This project includes the development, integration, and testing of a laser-based directed infrared countermeasure system for United States Navy and United States Marine Corps assault aircraft. This infrared countermeasure, when integrated with a missile warning detection system, will be capable of countering current and emerging IR threats. An USD(AT&L) Acquisition Decision Memorandum dated 15 April 09 designated the Army as the lead service for developing this capability for all rotary-wing, tilt-rotor, and small fixed-wing aircraft across the Department of Defense. It also designated the program as an ACAT 1D Special Interest program. The Army has designated the acquisition effort for this capability as the CIRCM program.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> CIRCM Technology Development	-	-	4.399
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Support Technology Development (TD) phase and program support for CIRCM.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	4.399

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

N/A

**D. Acquisition Strategy**

CIRCM is a new start for the Navy with efforts to begin in FY 2013. CIRCM is an ACAT-ID Army lead acquisition program for the development, integration and production of an Infra-red Countermeasure for US Army, US Navy, and US Marine Corps assault aircraft. The Army will conduct a 21 month competitive prototyping TD phase with at least one contractor. During this time contractor(s) will deliver twelve prototypes for various test events with emphasis placed on reliability. Contractor(s) will concurrently develop preliminary designs for the CIRCM system, conducting Systems Requirements Review (SRR), System Functional Review, and Preliminary Design Review Systems Engineering Technical Review events at appropriate times in the schedule. Upon completion of TD, the Army will conduct a competition for award of Engineering Manufacturing Development (EMD) contract(s). The EMD phase will be no more than 26 months and will include Critical Design Reviews, Test Readiness Reviews, EMD test assets and extensive testing. Following EMD will be a yet to be defined Low Rate Initial Production phase where full qualification testing is conducted to support a First Unit Equipped date of FY 2018. Navy platforms will begin installation of CIRCM beginning in FY 2016.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3304: <i>CIRCM</i>

**E. Performance Metrics**

FY 2013:  
Successful demonstration of Common Infrared Countermeasures-Joint and Allied Threat Awareness System (CIRCM-JATAS) Initial Capabilities Document Interoperability in Lab environment  
Successful award of Engineering and Manufacturing Development (EMD) contract(s)

FY 2014:  
Successful Critical Design Reviews and Technical Readiness Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3304: <i>CIRCM</i>
---	--	--------------------------------------

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng Govt CIRCM	WR	NAWCAD:Pax River, MD	-	-		2.225	Dec 2012	-		2.225	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		2.225		-		2.225			

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics CIRCM I	WR	Various:Various	-	-		0.310	Dec 2012	-		0.310	Continuing	Continuing	Continuing
Integrated Logistics CIRCM II	C/CPFF	Wyle Labs:Huntsville, AL	-	-		0.126	Jun 2013	-		0.126	0.126	0.252	0.252
SW Dev CIRCM	WR	NAWCWD:Point Mugu, CA	-	-		0.118	Dec 2012	-		0.118	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		0.554		-		0.554			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Eng & Eval CIRCM	C/CPFF	TBD:TBD	-	-		0.206	Dec 2012	-		0.206	0.208	0.414	0.414
Eng & Eval Govt CIRCM	WR	Various:Various	-	-		0.641	Jan 2013	-		0.641	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		0.847		-		0.847			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Eng Supt CIRCM	C/CPFF	Various:Various	-	-		0.329	Dec 2012	-		0.329	0.352	0.681	0.681
Govt Eng Supt CIRCM	WR	NAWCWD:Point Mugu, CA	-	-		0.118	Dec 2012	-		0.118	Continuing	Continuing	Continuing





**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3304: <i>CIRCM</i>
---	--	--------------------------------------

CIRCM	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>																												
Milestones											MS-B ▲																	
<b>Systems Development</b>																												
Hardware Development																												
Software Development																												
Reviews																												
<b>Test &amp; Evaluation</b>																												
Technical Evaluation																												
Operational Evaluation																												
<b>Production Milestones</b>																												
Contract Awards																												
Deliveries																												

2013PB - 0604272N - 3304

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604272N: <i>Tact Air Dir Infrared CM (TADIRCM)</i>	<b>PROJECT</b> 3304: <i>CIRCM</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>CIRCM</i></b>				
Acquisition Milestones: Milestones: Milestone B	3	2013	3	2013
Acquisition Milestones: Milestones: Milestone C	3	2015	3	2015

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604279N: <i>(U)ASE Self Protection Optimization</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	7.000	0.697	0.711	-	0.711	0.426	0.426	0.426	0.433	Continuing	Continuing
3308: <i>Technology Development</i>	-	0.474	0.474	-	0.474	0.189	0.189	0.189	0.192	Continuing	Continuing
3309: <i>Assault Survivability Optimization</i>	7.000	0.223	0.237	-	0.237	0.237	0.237	0.237	0.241	Continuing	Continuing

**Note**

This program element is a new start in FY 2012.

**A. Mission Description and Budget Item Justification**

This element includes development of Aircraft Survivability equipment and Electronic Warfare/Countermeasures solutions for the United States Navy, United States Marine Corps and Coalition Aircraft to include studies and evaluations of current and future aircraft threats, Modeling and Simulation for improved countermeasure capabilities, and development and testing to address new and emerging threats.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	-	0.711	0.711	-	0.711
Current President's Budget	7.000	0.697	0.711	-	0.711
Total Adjustments	7.000	-0.014	-	-	-
• Congressional General Reductions	-	-0.014			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	7.000	-			
• SBIR/STTR Transfer	-	-			

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604279N: <i>(U)ASE Self Protection Optimization</i>	<b>PROJECT</b> 3308: <i>Technology Development</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3308: <i>Technology Development</i>	-	0.474	0.474	-	0.474	0.189	0.189	0.189	0.192	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Project Unit 3308 Technology Development: Funds efforts that focus on the quick reaction prototyping of tactical Electronic Warfare (EW)/Countermeasures solutions for increased survivability providing friendly forces the self protection necessary for successful mission accomplishment. This program directly addresses the operational requirement of multiple airborne platforms (Strike and Assault) for optimization of EW/Countermeasure solutions across the Department of the Navy. Improved countermeasure capabilities and techniques through Modeling and Simulation, validated in subsequent field testing to address new and emerging threats, capitalize upon upgrades to Aircraft Survivability Equipment systems capabilities for Strike and Assault platforms and evaluate new Radio Frequency Countermeasure (RFCM) & Infra Red Countermeasure (IRCM) technologies.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Technology Development	-	0.474	0.474
<b>Articles:</b>		0	0
<b>FY 2012 Plans:</b> Begin studies and vulnerability analysis for EW programs.			
<b>FY 2013 Plans:</b> Continue studies and vulnerability analysis for EW programs.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	0.474	0.474

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

N/A

**D. Acquisition Strategy**

An EW study and vulnerability analysis will be conducted in FY 2012. The contractor and contract type will be determined as requirements evolve.

**E. Performance Metrics**

Successfully award a studies and analysis contract in FY 2012.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604279N: <i>(U)ASE Self Protection Optimization</i>	<b>PROJECT</b> 3309: <i>Assault Survivability Optimization</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3309: <i>Assault Survivability Optimization</i>	7.000	0.223	0.237	-	0.237	0.237	0.237	0.237	0.241	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 funds helicopter survivability evaluations of advanced Aircraft Survivability equipment for USMC, Navy, and Coalition Aircraft. The Missile Warning System (MWS), Laser Warning System (LWS), and Radar Warning Receiver (RWR) require periodic effectiveness and sustainability upgrades. Resources will be applied to the following areas:

1. Studies and Evaluations of current and future MWS/LWS/RWR Rotary aircraft threats.
2. MWS/LWS/RWR modeling techniques to support future hardware/software upgrades.
3. Evaluation of science and technology development programs in PMA-272 for transition into programs of record.
4. Evaluate sustainability enhancements as platforms migrate to Advanced Displays and Controls.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Studies & Analysis	7.000	0.223	0.237
<b>Articles:</b>	0	0	0
<b>FY 2011 Accomplishments:</b> N/A			
<b>FY 2012 Plans:</b> Begin studies and analysis for Joint Allied Threat Awareness System (JATAS) programs.			
<b>FY 2013 Plans:</b> Continue studies and analysis for Joint Allied Threat Awareness System (JATAS) programs.			
<b>Accomplishments/Planned Programs Subtotals</b>	7.000	0.223	0.237

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

N/A

**D. Acquisition Strategy**

MWS/LWS/RWR Rotary aircraft threat analysis will be conducted in FY 2012. The contractor and contract type will be determined as requirements evolve.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604279N: <i>(U)ASE Self Protection Optimization</i>	<b>PROJECT</b> 3309: <i>Assault Survivability Optimization</i>

**E. Performance Metrics**

Successfully award a threat analysis contract in FY 2012.



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>
---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	68.421	62.044	71.300	-	71.300	27.600	-	-	-	0.000	229.365
3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>	56.621	62.044	71.300	-	71.300	27.600	-	-	-	0.000	217.565
9999: <i>Congressional Adds</i>	11.800	-	-	-	-	-	-	-	-	0.000	11.800

**Note**

A Memorandum of Understanding (MOU) will be developed to detail the transition of JCREW Executive Agent responsibilities to the Army.

**A. Mission Description and Budget Item Justification**

Provides for the research and development of EW systems, equipment, procedures, and tactical aids for all military services against the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs) and to prevent initiation of RCIEDs across the spectrum of Joint military operations. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet global joint requirements. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted, and fixed site operations; provide Joint CREW development of equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with a migrating global threat.

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	56.542	62.044	71.284	-	71.284
Current President's Budget	68.421	62.044	71.300	-	71.300
Total Adjustments	11.879	-	0.016	-	0.016
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	8.500	-			
• SBIR/STTR Transfer	-1.865	-			
• Program Adjustments	11.800	-	0.014	-	0.014
• Rate/Misc Adjustments	-	-	0.002	-	0.002
• Congressional General Reductions Adjustments	-0.256	-	-	-	-
• Congressional Directed Reductions Adjustments	-6.300	-	-	-	-

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *Joint Counter Radio-Controlled IED Elec Warfare - Cong*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	<b>FY 2011</b>	<b>FY 2012</b>
	11.800	-
	11.800	-
	11.800	-

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>
---	---	--

COST (\$ in Millions)	FY 2011		FY 2012		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		Cost To Complete	Total Cost
	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost					
3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>	56.621	62.044	71.300	-	71.300	27.600	-	-	-	0.000	217.565					
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0	0					

**A. Mission Description and Budget Item Justification**

Provides for the research and development of EW systems, equipment, procedures, and tactical aids for all military services against the threat posed by Radio-Controlled Improvised Explosive Devices (RCIEDs) and to prevent initiation of RCIEDs across the spectrum of Joint military operations. The Navy has been designated as DOD Executive Agent and Single Manager for Military Ground-Based Counter Radio-Controlled Improvised Explosive Warfare (CREW) Technology by DOD Directive 5101.14 of 11 June 2007, requiring RDT&E to develop capabilities that meet global joint requirements. Utilize Joint requirements to provide a system of systems approach for a suite of equipment for mounted, dismounted, and fixed site operations; provide Joint CREW development of equipment, procedures, and tactical aids to make rapid improvements to performance, supportability and affordability, while maintaining pace with a migrating global threat.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Joint Counter Radio-Controlled IED Elec Warfare	56.621	62.044	71.300
<b>Articles:</b>	0	0	0
<p><b>Description:</b> Defines the effort required for the design, engineering, development, fabrication and test of contractor's development models for in-house verification and validation for governmental developmental testing for JCREW System of Systems (SoS) to include the System Development and Demonstration (SD&amp;D) Phase. The JCREW SoS approach includes three distinct capabilities that shall be developed and will utilize common component, software, and hardware solutions for an open, flexible, and compatible system design approach that is modular. These capabilities are: mobile dismounted operations, mobile ground, and waterborne transport and combat systems (mounted) and semi-permanent geographical area (fixed) systems. All capabilities will have coalition sharing capabilities. Multiple awards will be made for all capabilities.</p> <p><b>FY 2011 Accomplishments:</b> Fabrication and testing of Engineering Development Models (EDMs) for the Joint Counter Radio Controlled IED Electronic Warfare (JCREW) program.</p> <p><b>FY 2012 Plans:</b> Successfully complete MS C ILA; successful Limited User Test and MS C decision.</p> <p><b>FY 2013 Plans:</b></p>			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>
---	---	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Government developmental test; Initial Operational Test and Evaluation (IOT&E); Full Rate Production Decision; start of Engineering Manufacturing Development (EDM) contract to develop I1B2.			
<b>Accomplishments/Planned Programs Subtotals</b>	56.621	62.044	71.300

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• OPN/5509: <i>Explosive Ordnance Disposal Equip</i>	0.000	61.134	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	61.134

**D. Acquisition Strategy**

Analysis of Alternatives (AOA) studies are always conducted prior to the initiation of new subprojects. The AOA addresses and emphasizes acquisition strategies of the most cost effective solution over subprojects' life-cycle. At significant decision points, the AOA will be re-validated or updated to reflect changes in technology and threat. The acquisition strategies observe the following hierarchy of alternatives: commercial item (including modification), non-developmental item (including modification), and lastly, developmental programs. Contracting for RDT&E, if required, is always competitive and when feasible, production options are included. Procurements across the services may be combined to gain quantity discounts.

**E. Performance Metrics**

Gate 6 Milestone B complete 10 Jul 2009; Contract for Preliminary Design Review (PDR) awarded 01 Oct 2009; achieved successful Preliminary Design Reviews (PDRs) April 2010; achieved successful Critical Design Review (CDR) Oct 2010; Milestone C anticipated in Q3 FY12.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>
---	---	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	Various	ITT:New Jersey	19.992	4.219	Oct 2011	6.500	Nov 2012	-		6.500	0.000	30.711	Continuing
Software Development	Various	ITT:New Jersey	18.216	2.810	Oct 2011	7.994	Nov 2012	-		7.994	0.000	29.020	Continuing
Systems Engineering	Various	ITT:New Jersey	13.300	1.100	Nov 2011	1.800	Nov 2012	-		1.800	0.000	16.200	Continuing
ILS	Various	ITT:New Jersey	4.410	1.200	Nov 2011	1.500	Nov 2012	-		1.500	0.000	7.110	Continuing
System Integration	Various	ITT:New Jersey	5.530	2.400	Nov 2011	2.800	Nov 2012	-		2.800	0.000	10.730	Continuing
Loadset Development	Various	ITT:New Jersey	3.700	0.500	Nov 2011	1.000	Nov 2012	-		1.000	0.000	5.200	Continuing
<b>Subtotal</b>			65.148	12.229		21.594		-		21.594	0.000	98.971	

**Remarks**  
Contract type is hybrid CPIF and CPAF.

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Loadset Development	FFRDC	JHU/APL:Laurel, MD	0.030	2.998	Nov 2011	1.200	Nov 2012	-		1.200	0.000	4.228	Continuing
Systems Engineering	WR	NSWC:Various	-	2.424	Nov 2011	8.000	Nov 2012	-		8.000	0.000	10.424	Continuing
Program Management Support	WR	NAVEODTECHDIV:Indian Head, MD	7.710	3.720	Nov 2011	3.000	Nov 2012	-		3.000	0.000	14.430	Continuing
System Integration	WR	NSWC:Various	-	1.938	Nov 2011	2.200	Nov 2012	-		2.200	0.000	4.138	Continuing
Training Development	C/CPFF	SDI, GOV'T SOLUTIONS:LaPlata, MD	1.370	3.033	Nov 2011	1.300	Nov 2012	-		1.300	0.000	5.703	Continuing
Integrated Logistics Support	WR	NSWC:Various	1.000	8.383	Nov 2011	1.200	Nov 2012	-		1.200	0.000	10.583	Continuing
Techniques Development	WR	NSWC:Various	-	-		-	Nov 2012	-		-	0.000	0.000	4.600
Configuration Management	WR	NSWC:Various	2.200	1.446	Nov 2011	1.500	Nov 2012	-		1.500	0.000	5.146	Continuing
Technical Data	WR	NSWC:Various	2.750	2.831	Nov 2011	1.200	Nov 2012	-		1.200	0.000	6.781	Continuing
<b>Subtotal</b>			15.060	26.773		19.600		-		19.600	0.000	61.433	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>
---	---	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation	WR	NSWC:Various	16.160	11.000	Nov 2011	7.492	Oct 2012	-		7.492	0.000	34.652	Continuing
Operational Test & Evaluation	MIPR	ATEC:Arlington, VA	2.190	5.800	Mar 2012	14.250	Oct 2012	-		14.250	0.000	22.240	Continuing
<b>Subtotal</b>			18.350	16.800		21.742		-		21.742	0.000	56.892	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	CACI:Fairfax, VA	8.720	4.470	Nov 2011	4.000	Nov 2012	-		4.000	0.000	17.190	Continuing
Miscellaneous	WR	NSWC:Various	3.010	1.772	Nov 2011	4.364	Nov 2012	-		4.364	0.000	9.146	Continuing
<b>Subtotal</b>			11.730	6.242		8.364		-		8.364	0.000	26.336	

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			110.288	62.044		71.300		-		71.300	0.000	243.632	

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JCREW I1B1																												
System Development & Demonstration																												
JCREW Tactical Decision Aid Development																												
JCREW System Demonstration, Test & Eval ofTDA																												
Developmental Testing/Operational Assessment																												
Developmental Testing/Operational Testing																												
Milestone C																												
LRIP																												
JCREW I1B2																												
Technology Development																												
Tech Readiness Assessment and Performance																												
Specification Development																												
System Engineering & Manufacturing Demonstration																												
JCREW Tactical Decision Aid Development																												
JCREW System Demonstration, Test & Eval ofTDA																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>	<b>PROJECT</b> 3177: <i>Joint Counter Radio-Controlled IED Elec Warfare</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3177</b>				
JCREW I1B1	1	2011	1	2013
System Development & Demonstration (Increment I)	1	2011	2	2012
JCREW Tactical Decision Aid Development (Increment 1)	1	2011	2	2012
JCREW System Demonstration, Test and Eval of TDA	1	2011	1	2013
Developmental Testing/Operational Assessment	2	2011	2	2012
Developmental Testing/Operational Testing	2	2011	4	2012
Milestone C (I1B1)	3	2012	3	2012
LRIP (I1B1) (OPN)	3	2012	2	2014
JCREW I1B2	1	2012	4	2014
Technology Development	1	2012	4	2012
Tech Readiness Assessment and Performance Specification Development	1	2012	3	2013
System Engineering & Manufacturing Demonstration	1	2013	4	2014
JCREW Tactical Decision Aid Development (Increment 2)	1	2013	1	2014
JCREW System Demonstration, Test & Eval of TDA	2	2012	4	2014



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604653N: <i>JT Cntr Radio Controlled IED Elec War (JCREW)</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	---	---

COST (\$ in Millions)	FY 2011		FY 2012		FY 2013		FY 2014		FY 2015		FY 2016		FY 2017		Cost To Complete	Total Cost
					Base	OCO	Total									
9999: <i>Congressional Adds</i>	11.800	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	11.800
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Congressional Add for Network Enabled Electronic Warfare.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2011	FY 2012
<b>Congressional Add:</b> Joint Counter Radio-Controlled IED Elec Warfare - Cong	11.800	-
<b>FY 2011 Accomplishments:</b> Technology development and risk mitigation for multi functional electronic warfare capabilities: Design, develop, and evaluate a system concept for the Network Enabled Electronic Warfare System (NEEWS). The purpose of NEEWS is to collect and analyze information derived from current tactical sensors and electronic warfare systems; distribute it to tactical EWOs, EOD engineer, intelligence, and maneuver units to provide enhanced real time situation awareness for CREW and other electronic warfare systems.		
<b>Congressional Adds Subtotals</b>	11.800	-

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

N/A

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>							
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	5.322	3.450	5.654	-	5.654	2.269	-	-	-	0.000	16.695
3214: <i>Fuze Development Program</i>	5.322	3.450	5.654	-	5.654	2.269	-	-	-	0.000	16.695

**Note**

1. Project 3214: The FMU-164/B Bomb Fuze program was cancelled on April 25, 2011. The Hard Target Void Sensing Fuze (HTVSF) is the remaining project under Project Unit 3214.
2. The Offensive Anti-Surface Warfare Weapon Program transitioned from Program Element (PE) 0604659N Project Unit (PU) 3337 to PE 0604786N PU 3337

**A. Mission Description and Budget Item Justification**

The Precision Strike Weapons Development program provides for initial and continuing development of strike weapons consisting of armament, munitions, and weapon subsystems to allow for the horizontal integration among current and future weapon system capabilities to include Anti-Surface Warfare and the weaponization of Unmanned Aerial Systems. This program provides for the development of weapon and weapon system technologies to address urgent requirements for enhanced and alternative weapon system capability requirements that include selectable output weapons, low collateral damage weapons, precision lethality weapons, alternative warhead technology, scaled munitions, DoD fuzing systems, sensors, extended range weapons and precision guided training round technology.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	25.121	22.665	26.324	-	26.324
Current President's Budget	5.322	3.450	5.654	-	5.654
Total Adjustments	-19.799	-19.215	-20.670	-	-20.670
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-19.215			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	-20.683	-	-20.683
• Rate/Misc Adjustments	-	-	0.013	-	0.013
• Congressional Recision Adjustments	-19.671	-	-	-	-
• Congressional General Reductions Adjustments	-0.128	-	-	-	-

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>

**Change Summary Explanation**

FMU-164/B Bomb Fuze program was cancelled on April 25, 2011.

Hard Target Void Sensing Fuze schedule updated to show an Engineering and Manufacturing Development contract award with 62 deliveries starting in 4th QTR of FY11 and Ending in 2 QTR of FY14.

The Offensive Anti-Surface Warfare Weapon Program transitioned from Program Element (PE) 0604659N Project Unit (PU) 3337 to PE 0604786N PU 3337

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3214: <i>Fuze Development Program</i>	5.322	3.450	5.654	-	5.654	2.269	-	-	-	0.000	16.695
Quantity of RDT&E Articles	30	26	3	0	3	0	0	0	0		

**Note**

On April 25, 2011, the Department of the Navy made the decision to cancel FMU-164/B Bomb Fuze program. The program was identified in the FY12 National Defense Authorization Act chairman's marks.

**A. Mission Description and Budget Item Justification**

The Fuze Development Program provides for the development of alternative and innovative fuze system and fuze sensor technologies to improve the reliability, capability and production characteristics of fuze products. This program also provides for emerging technology insertion to improve the performance and maintainability characteristics of current and future fuze and fuze sensor technologies.

On April 25, 2011, the decision to cancel the FMU-164/B Bomb Fuze program was made based upon the Navy's holistic analysis of current bomb fuzing systems and budgetary concerns versus the program's return on investment. Required funding is being retained to execute an orderly program cancellation and to support ongoing product improvement efforts for existing fuze configurations. Current software updates including H8, H10, H6.1, and 25X Operational Flight Program integration testing will continue to support integration of product improvements for existing fuze configurations.

The Hard Target Void Sensing Fuze (HTVSF) is an FY08 Joint Capability Technology Demonstration (JCTD) sponsored by United States Strategic Command in coordination with the United States Air Force and United States Navy. The JCTD was a 27 month risk reduction program that was awarded to two Contractors in 3rd QTR FY08 to perform design, test, and manufacturing activities leading to a down-select to a single Contractor for Engineering Manufacturing Development (EMD) and production. The JCTD was completed in 3th QTR FY10 and the EMD contract was awarded to a single Contractor in 2nd QTR FY11. HTVSF is designed to prosecute harder, deeper, and more complex targets that exceeded design parameters of existing conventional kinetic strike capabilities. HTVSF will be used only with BLU-109 Joint Direct Attack Munitions.

Note: First test article quantity for HTVSF includes FY11-Quantity 30, FY 12-Quantity 26 , FY13-Quantity 3, FY14-Quantity 3

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

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
<b>Title:</b> Hard Target Void Sensing Fuze (HTVSF) Hardware Development	5.322	3.450	5.654	-	5.654
<b>Articles:</b>	30	26	3		3

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

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

	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
<b>Description:</b> HTVSF hardware development funding will be used to qualify the fuze booster as part of the BLU-109 explosive train and begin F/A-18E/F software OFP development.					
<b>FY 2011 Accomplishments:</b> Funding was used for F/A-18 OFP development, mission planning, procure sled and flight test hardware, execute tests and procure Engineering Manufacturing Development (EMD) test assets.					
<b>FY 2012 Plans:</b> Continue F/A-18 E/F integration, begin mission planning software, procure additional EMD test assets and conduct testing.					
<b>FY 2013 Base Plans:</b> Continue F/A-18 E/F integration, continue mission planning software, procure additional EMD test assets and conduct testing.					
<b>Accomplishments/Planned Programs Subtotals</b>	5.322	3.450	5.654	-	5.654

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

Line Item	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
• Proc/PE 020803: <i>USAF</i>	0.000	0.000	0.000	0.000	0.000	39.300	38.500	39.500	0.000	0.000	117.300
• RDTE/ PE 064635F: <i>Air Force (SDD)</i>	32.500	24.500	5.200	0.000	5.200	10.000	0.000	0.000	0.000	0.000	72.200
• PAN&MC/014500: <i>General Purpose Bombs HTVSF</i>	0.000	0.000	0.000	0.000	0.000	2.000	4.300	4.386	0.000	0.000	10.686

**D. Acquisition Strategy**

The Hard Target Void Sensing Fuze (HTVSF) Joint Capability Technology Demonstration (JCTD) is a risk reduction effort. The JCTD supported two competitively selected sources for development and testing of initial prototyping. Following the JCTD, a down select to a single source occurred, awarding a contract to ATK in FY11. Engineering Manufacturing Development phase is ongoing and Low Rate Initial Production contract award is planned for FY14 and Full Rate Production in FY15.

**E. Performance Metrics**

HTVSF achieved MS B 2nd QTR FY11.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development HTVSF	C/PIIF	ATK:Keyser, WV	2.292	-	Jan 2012	0.421	Feb 2013	-	Feb 2013	0.421	0.411	3.124	3.124
<b>Subtotal</b>			2.292	-		0.421		-		0.421	0.411	3.124	3.124

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development FMU-164	WR	NAWC WC:China Lake, CA	2.185	-		-		-		-	0.000	2.185	
Software Development FMU-164	SS/CPIIF	Boeing:St.Louis, MO	0.709	-		-		-		-	0.000	0.709	
Integrated Logistic Support FMU-164	WR	NAWC AD:Patuxent River, MD	0.072	-		-		-		-	0.000	0.072	
Software Development FMU-164	MIPR	Air Force:Eglin AFB, FL	0.731	-		-		-		-	0.000	0.731	
Software Development HTVSF	WR	NAWC WD:China Lake, CA	2.677	0.900	Nov 2011	1.000	Dec 2012	-		1.000	0.300	4.877	
Software Development HTVSF	C/CPIIF	Boeing:St.Louis, MO	1.679	0.326	Mar 2012	0.350	Mar 2013	-		0.350	0.150	2.505	2.505
Integrated Logistic Support HTVSF	WR	NAWC AD:Patuxent River, MD	0.037	0.043	Nov 2011	0.023	Nov 2012	-		0.023	0.015	0.118	
Prior years cost no longer funded in the FYDP	Various	Various:Various	0.250	-		-		-		-	0.000	0.250	
<b>Subtotal</b>			8.340	1.269		1.373		-		1.373	0.465	11.447	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation FMU-164	WR	NAWC AD:Patuxent River, MD	1.500	-		-		-		-	0.000	1.500	
Operational Test & Evaluation FMU-164	WR	OPTVFOR:Norfolk, VA	0.280	-		-		-		-	0.000	0.280	
Development Test & Evaluation HTVSF	WR	OPTVFOR:Norfolk, VA	0.040	0.020	Nov 2011	0.020	Nov 2012	-		0.020	0.040	0.120	
Operational Test & Evaluation HTVSF	WR	NAWC AD:Patuxent River, MD	-	0.900	Nov 2011	0.400	Nov 2012	-		0.400	0.200	1.500	
Operational Test & Evaluation HTVSF	MIPR	Air Force:Eglin AFB, FL	-	-		0.674	Nov 2012	-		0.674	0.200	0.874	
Development Test & Evaluation HTVSF	WR	NAWC WD:China Lake, CA	-	-		1.400	Nov 2012	-		1.400	0.250	1.650	
Operational Test & Evaluation HTVSF	WR	Various:Various	-	0.200	Nov 2011	0.100	Nov 2012	-		0.100	0.250	0.550	
Prior years cost no longer funded in the FYDP	Various	Various:Various	7.559	-		-		-		-	0.000	7.559	
<b>Subtotal</b>			9.379	1.120		2.594		-		2.594	0.940	14.033	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support FMU-164	WR	NAWC WD:China Lake, CA	2.228	-		-		-		-	0.000	2.228	
Government Support FMU-164	WR	NAWC AD:Patuxent River, MD	1.852	-		-		-		-	0.000	1.852	
Program Management Support FMU-164	WR	Various:Various	0.551	-		-		-		-	0.000	0.551	
Program Management Support FMU-164	C/CPFF	NAWC AD:Patuxent River, MD	2.366	-	Dec 2011	-		-		-	0.000	2.366	2.366
Travel	Various	NAWC AD:Patuxent River, MD	0.148	0.010	Jan 2012	0.028	Jan 2013	-		0.028	0.060	0.246	



**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Government Support HTVSF	WR	NAWC WD:China Lake, CA	1.800	0.801	Nov 2011	0.894	Nov 2012	-		0.894	0.200	3.695	
Government Support HTVSF	WR	NAWC AD:Patuxent River, MD	0.500	0.250	Nov 2011	0.190	Nov 2012	-		0.190	0.200	1.140	
Management Support HTVSF	C/FFP	NAWC AD:Patuxent River, MD	-	-		0.154	Dec 2012	-		0.154	0.200	0.354	0.400
<b>Subtotal</b>			9.445	1.061		1.266		-		1.266	0.660	12.432	
<b>Project Cost Totals</b>			29.456	3.450		5.654		-		5.654	2.476	41.036	

**Remarks**  
On April 25, 2011, the DoN cancelled the FMU-164/B Bomb Fuze program. FY11 funding will be used for termination costs, which are being finalized. H.R. 1540 National Defense Authorization Act recommends an \$18.2M reduction to FY12 to support program cancellation.



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

FMU-164/Bomb Fuze	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Acquisition Milestones</b>																												
Milestones																												
<b>Systems Development</b>																												
Hardware Development																												
Tech Dev Close out Tasking																												
Reviews																												
Contract Award																												
Test Unit Deliveries																												
<b>Test &amp; Evaluation</b>																												
Technical Evaluation																												
<b>Production Milestones</b>																												
<b>Deliveries</b>																												

2013OSD - 0604659N - 3214

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Hard Target Void Sensing Fuze (HTVSF)</b>				
Acquisition Milestones: Milestones: Milestone B (MS B)	2	2011	2	2011
Acquisition Milestones: Milestones: Full Rate Production Decision (FRPD)	3	2015	3	2015
Acquisition Milestones: Milestones: Milestone C (MS C)	3	2014	3	2014
Acquisition Milestones: Milestones: IOC	4	2015	4	2015
Systems Development: Hardware Development: Transition to Engineering, Manufacturing, and Development Phase (EMD)	1	2011	2	2011
Systems Development: Hardware Development: Engineering, Manufacturing, and Development Phase (EMD)	3	2011	2	2014
Systems Development: Reviews: EMD Critical Design Review (CDR)	4	2011	4	2011
Systems Development: Contract Award: Engineering, Manufacturing, and Development Phase (EMD)	2	2011	2	2011
Systems Development: Test Unit Deliveries: 62 Test Deliveries	4	2011	2	2014
Test & Evaluation: Technical Evaluation: Developmental Test and Evaluation (DT&E)	4	2011	2	2014
Test & Evaluation: Operational Evaluation: Intergrational Operational Test and Evaluation (IOT&E)	1	2015	2	2015
Production Milestones: Contract Awards: Low-Rate Initial Production (LRIP) Award (PANMC)	3	2014	3	2014
Production Milestones: Contract Awards: Full Rate Production-1 (FRP) Award (PANMC)	4	2015	4	2015
Production Milestones: Contract Awards: Full Rate Production-2 (FRP) Award (PANMC)	3	2016	3	2016
Deliveries: LRIP Deliveries 50 (PANMC)	2	2015	2	2016
Deliveries: FRP 1 Deliveries 225 (PANMC)	2	2016	2	2017

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604659N: <i>(U)Precision Strike Weapons Development Program</i>	<b>PROJECT</b> 3214: <i>Fuze Development Program</i>
---	---	---

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>FMU-164/Bomb Fuze</b>				
Systems Development: Hardware Development: Technology Development Phase Close out Tasking	1	2011	4	2012

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	31.785	33.573	31.549	-	31.549	31.665	35.579	32.423	32.136	Continuing	Continuing
0798: <i>Allied/Coalition Interoperability and Information Dominance (ACIID)</i>	0.840	0.792	0.772	-	0.772	0.783	0.784	0.786	0.799	Continuing	Continuing
2144: <i>Space &amp; Elec Warfare Engineering</i>	9.864	9.245	9.085	-	9.085	8.657	8.687	8.500	8.472	Continuing	Continuing
2356: <i>Maritime Concept Generation &amp; Development</i>	-	-	8.323	-	8.323	8.432	9.178	7.800	8.729	Continuing	Continuing
2357: <i>Maritime Battle Center</i>	21.081	8.848	-	-	-	-	-	-	-	0.000	29.929
3319: <i>Fleet Experimentation</i>	-	14.688	13.369	-	13.369	13.793	16.930	15.337	14.136	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

This Program Element (PE) contains four projects: Maritime Battle Center (MBC), Fleet Experimentation (beginning in FY12 with funding moving from MBC), Allied/Coalition Interoperability and Information Dominance (ACIID), and Space and Electronic Warfare (SEW) Engineering. The MBC project (2357) focuses on fleet experimentation in order to eliminate war fighting gaps and validate Navy Concept of Operations (CONOPS) and doctrine. The MBC also manages the Sea Trial program of fleet experimentation that is administered by the Sea Trial Executive Steering Group (STESG). Both MBC and Sea Trial integrate emergent concepts and technologies through experiments, analysis, modeling and simulation to support war fighting capability development. Sea Trial experimentation is dedicated to providing solutions to near term (within the Fiscal Year Defense Plan) war fighting gaps through focused operational agent (Commander Second Fleet, Commander Third Fleet and Commander Naval Network Warfare Command) led experimentation. The flag level Sea Trial Executive Steering Group prioritizes proposed Sea Trial experiments annually. The MBC will also serve as the Navy representative to the Joint Battle Center and the battle labs of other services.

The ACIID and SEW Engineering projects (0798 and 2144 respectively) are systems engineering non-acquisition programs to develop, test, implement technical authority, and validate naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures to support naval missions in the Joint and Coalition Theater. The mission of these projects are carried out by multiple tasks that are used to ensure naval C4ISR Command and Control Warfare (C2W) components of SEW are effectively integrated into service-oriented architecture delivering net-centric warfare capability. Additionally, these projects ensure that (1) the composite operational capabilities of SEW systems (not the individual component systems) conform to the naval C4ISR architecture and enhance war fighting capability as related to the objectives of National Defense Strategy, evolving joint visions and direction, such as net centric capability, and are guided by warfighter requirements; (2) that SEW systems and systems integration efforts involve leading-edge technology transfer of information processing technologies primarily through integration of government and commercial off-the-shelf (GOTS/COTS) products to enhance the Navy's operational capability, interoperability, warfighter effectiveness, flexible reconfiguration, as well as reduce costs; and (3) that SEW systems integration efforts promote the delivery of Information Dominance and the Navy's contribution to the Global Information Grid (GIG).

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>	<b>R-1 ITEM NOMENCLATURE</b>
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i>	PE 0604707N: <i>SEW Architecture/Eng Support</i>
BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	34.793	33.621	33.181	-	33.181
Current President's Budget	31.785	33.573	31.549	-	31.549
Total Adjustments	-3.008	-0.048	-1.632	-	-1.632
• Congressional General Reductions	-	-0.048			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.000	-			
• SBIR/STTR Transfer	-0.805	-			
• Program Adjustments	-	-	-1.226	-	-1.226
• Rate/Misc Adjustments	-	-	-0.406	-	-0.406
• Congressional General Reductions Adjustments	-0.203	-	-	-	-



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>				<b>PROJECT</b> 0798: <i>Allied/Coalition Interoperability and Information Dominance (ACIID)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0798: <i>Allied/Coalition Interoperability and Information Dominance (ACIID)</i>	0.840	0.792	0.772	-	0.772	0.783	0.784	0.786	0.799	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Starting in FY 2011, the Coalition Naval Tactical Networking (CNTN) effort is referred to as Anti-Access Area Denial (A2AD).

**A. Mission Description and Budget Item Justification**

The Allied/Coalition Interoperability and Information Dominance (ACIID) program advances network centric warfare and Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) interoperability with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), North Atlantic Treaty Organization (NATO) and other allied and coalition partners. The program determines allied and coalition maritime operational gaps, identifies Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities solutions with the potential to fill those gaps, and assesses these solutions and associated concepts of operation in laboratory and at-sea environments. The ACIID program includes integration and testing in support of joint and coalition war fighting capabilities, including interoperability testing of C4ISR equipments. Coalition and joint interoperability is critical for future maritime operations, especially as the United States Navy expands Internet Protocol (IP) networking throughout the fleet via Consolidated Afloat Networks and Enterprise Services, Next Generation Networks, Multi-National Information Sharing and with the Global Information Grid. Currently, IP connectivity with AUSCANNZUKUS and other allied/coalition forces is limited, requiring extensive backhaul through ashore infrastructure. Higher bandwidth solutions suitable for use over tactical networks require development and assessment for emerging coalition and joint interoperability requirements, such as A2AD and Maritime Domain Awareness. Increases in data throughput are required for the effective exchange of rich data sets and services via Service Oriented Architectures within the limitations of High Frequency, Ultra-High Frequency and other portions of the radio frequency spectrum, coupled with appropriate Information Assurance and Computer Network Defense mechanisms. Development and assessment of potential solutions will integrate improved IP capabilities with the Advanced Digital Network Systems and existing international standards (e.g. NATO Standardization Agreements 5066 and 4691). The continued development and refinement of advanced tactical networking technologies and protocols, as well as automatic link establishment standards, will provide for a significant improvement in data sharing within, and between, coalition maritime elements

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> ADVANCED RELAY CAPABILITIES	0.840	0.792	0.772
<b>Articles:</b>	0	0	0
<b>Description:</b> Starting in FY 2011, the CNTN effort is referred to as A2AD.			
<b>FY 2011 Accomplishments:</b>			
-Developed and refined advanced relay capabilities that support A2AD. Solutions addressed advanced relay technologies, coalition routing architectures (with an emphasis on ciphertext or "black core" routing), application architectures/configurations and			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 0798: <i>Allied/Coalition Interoperability and Information Dominance (ACIID)</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p>Information Assurance/Computer Network Defense (IA/CND) solutions that maximized network efficiency using multiple, dissimilar bearers in the Anti-Access Area Denial (A2AD) environment on Combined Enterprise Regional Information Exchange System.</p> <ul style="list-style-type: none"> <li>-Integrated these advanced solutions with High Assurance Internet Protocol Encryption (HAIZE) devices and Service Oriented Architecture (SOA) in a coalition networking environment.</li> <li>-Progressed the standardization of Subnet Relay into North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAGs) 4691 (Subnet Relay) and 5066 Edition 3 High Frequency Internet Protocol (HFIP/Ultra-HFIP multi hop).</li> <li>-Refined broadband solutions, such as wide-band Ultrahigh Frequency (UHF) and Spatially Aware Wireless Networking, which enhanced throughput and promoted allied interoperability and assessed the ability of these solutions to support SOA.</li> <li>-Exploited venues of opportunity, such as Trident Warrior to evaluate and validate the individual technologies as well as integrated solutions through testing, trials and demonstrations.</li> </ul> <p><b>FY 2012 Plans:</b></p> <ul style="list-style-type: none"> <li>-Continue the development and refinement of advanced relay capabilities that promote interoperability with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS), NATO and other allied/coalition forces and support A2AD and Network Operations without Shore (NOWS).</li> <li>-Solutions will address higher bandwidth technologies, such as wide-band High Frequency (HF), wide-band UHF and broadband directional communications/networking, advanced relay technologies, coalition routing architectures (with an emphasis on cipher-text or "black core" routing), application and service architectures supporting A2AD/NOWS, and IA/CND solutions. Maximize interoperability and network efficiency using multiple, dissimilar bearers and integrate these advanced solutions with HAIZE devices and SOA in an A2AD/NOWS coalition networking environment.</li> <li>-Continue to progress the standardization of Maritime Relayed Line of Sight Network and HFIP into NATO STANAGs 4691 and 5066 respectively.</li> <li>-Venues of opportunity, such as Trident Warrior, will be exploited to assess and validate the individual technologies, integrated solutions and associated Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities through experimentation, trials and demonstrations with AUSCANNZUKUS and other Allied/Coalition partners.</li> </ul> <p><b>FY 2013 Plans:</b></p> <ul style="list-style-type: none"> <li>-Continue the development and refinement of advanced relay and communication capabilities that promote interoperability with AUSCANNZUKUS, NATO and other allied/coalition forces and support A2AD and NOWS. Solutions will address higher bandwidth technologies, such as wide-band HF, High Data Rate UHF and 3G/4G wireless.</li> <li>-Secure coalition routing architectures incorporating HAIZE devices that support tactical networking and A2AD will be developed along with distributed SOA applications and services architectures and advanced IA/CND solutions. The overall goal is to maximize interoperability and network efficiency using multiple, dissimilar bearers and integrate these advanced solutions into an A2AD/NOWS coalition tactical networking environment that would also include tactical data links, such as Link-22.</li> </ul>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 0798: <i>Allied/Coalition Interoperability and Information Dominance (ACIID)</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
-Continue to progress the North Atlantic Treaty Organization (NATO) standardization of Maritime Relayed Line of Sight Network Standardization Agreements (STANAG 4691) and High Frequency Internet Protocol (STANAG 5066 Edition 3). -Venues of opportunity, such as Trident Warrior, will be exploited to assess and validate the individual technologies, integrated solutions, and associated Doctrine, Organization, Training, Material, Leadership, Personnel and Facilities (DOTMLPF) through experimentation, trials and demonstrations with Australia, Canada, New Zealand, United Kingdom, United States (AUSCANNZUKUS) and other Allied/Coalition partners.			
<b>Accomplishments/Planned Programs Subtotals</b>	0.840	0.792	0.772

**C. Other Program Funding Summary (\$ in Millions)**  
N/A

**D. Acquisition Strategy**  
Allied/Coalition Interoperability and Information Dominance (ACIID) is a non-acquisition program that promotes United States Navy interoperability with allied and coalition forces to achieve the Chief of Naval Operations vision by facilitating maritime interoperability in both processes and communications systems, including emerging capabilities, to counter growing high-end asymmetric threats, and is a key enabler of the force multiplying benefits achieved through coalition cooperation among the AUSCANNZUKUS, NATO and other partner nations.

**E. Performance Metrics**  
Advanced Relay Capabilities: In FY12 and FY13, the ACIID program will employ laboratory testing and at-sea demonstrations to assess specific technologies, operational concepts, and integrated DOTMLPF solutions pertaining to Anti-Access Area Denial, Service Oriented Architectures, and Maritime Domain Awareness. These assessments will report on identified capability gaps, link capability gaps to technology/ DOTMLPF gaps, identify technologies and DOTMLPF solutions considered ready for deployment, transition to a program of record to enhance Fleet war fighting capability and enhance allied and coalition interoperability.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 0798: <i>Allied/Coalition Interoperability and Information Dominance (ACIID)</i>
---	--	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Relay Capabilities	Various	Various:Various	12.129	-		-		-		-	0.000	12.129	
Advanced Relay Capabilities	WR	SPAWAR:San Diego	0.853	0.792	Jan 2012	0.772	Jan 2013	-		0.772	Continuing	Continuing	Continuing
Interoperability Requirements	Various	Various:Various	3.266	-		-		-		-	0.000	3.266	
T & E Tools Development	Various	Various:Various	0.429	-		-		-		-	0.000	0.429	
Systems Int. & Interop. Testing (LBTN)	Various	Various:Various	3.862	-		-		-		-	0.000	3.862	
Interoperability Validation	Various	Various:Various	2.748	-		-		-		-	0.000	2.748	
Joint Interoperability	Various	Various:Various	1.174	-		-		-		-	0.000	1.174	
Testing OTH-T Systems	Various	Various:Various	3.069	-		-		-		-	0.000	3.069	
<b>Subtotal</b>			27.530	0.792		0.772		-		0.772			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various:Various	1.468	-		-		-		-	0.000	1.468	
ACQ Workforce Fund	Various	Various:Various	0.009	-		-		-		-	0.000	0.009	
<b>Subtotal</b>			1.477	-		-		-		-	0.000	1.477	

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		29.007	0.792	0.772	-	0.772		

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>				<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2144: <i>Space &amp; Elec Warfare Engineering</i>	9.864	9.245	9.085	-	9.085	8.657	8.687	8.500	8.472	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

OPNAVINST 3050.23 defines the policy to fuse validated and approved Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) architectures and interoperability requirements with joint requirements, milestones and program decisions. C4ISR integrated architectures are the underpinnings for all C4ISR mission areas and capabilities and, as such, requirements and acquisition processes have been reengineered to use these Integrated Architectures for decisional purposes and strategic planning.

Furthermore, Office of the Secretary of Defense (OSD) has defined key programs/efforts Global Information Grid Baseline Extension, Joint Tactical Radio System, Network Centric Enterprise Services, Information Assurance and standards that will drive and change the Navy's C4ISR integrated architectures and associated business processes for requirements, budgets and acquisition. To that end, the Space and Electronic Warfare provides three main functions: 1) Perform System of Systems and platform technical evaluations to establish the alignment with the N2/N6 Information Dominance vision and identify performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability. 2) Develop C4ISR integrated architecture products and 3) Support C4ISR systems engineering processes and standards. The integrated architecture products are used to support the Navy's C4ISR budget process by providing the critical core architecture and enabling capabilities to the war fighter. The C4ISR systems engineering processes and standards provide the construct for distributed Command and Control (C2) interoperability requirements analyses to identify capability shortfalls/gaps and for systems engineering to compare/test alternatives in a joint end-to-end environment while identifying associated Navy-wide C4ISR implications. Processes include developing and applying criteria for use in Systems Engineering Technical Reviews and providing technical input to governance bodies. This includes Human Systems Integration (HSI) to provide a mission-centered orientation to ensure effective operational employment of fielded capability. As joint concepts and OSD driving efforts/programs are matured/defined the Navy's C4ISR integrated architectures are refined and the supporting C4ISR systems engineer processes and standards work to engineer and enact C4ISR implementations Navy-wide across all C4ISR mission areas.

Products provided:

- 1) C4ISR integrated architectures
  - Integrated Architectures and Standards - Architecture Views (Operational Views, Service Views, Technical Views, System Views)
  - Migration roadmaps to the target architectures
  - Architecture technical authority, studies, interpretation assistance, and white papers
- 2) Supporting C4ISR systems engineering processes
  - Distributed C2 Interoperability Requirement Analysis - Gaps Analysis, Overlap Analysis, System Priority Lists, C4ISR Metrics and Models, Analysis of Alternatives, Requirements Database, Assessment Repository, Resource Implications Studies, Baseline Performance Models, Mission Task Analysis, HSI assessments.
  - End-to-End Systems Engineering and Integrated Design - Operational feasibility studies, technical feasibility studies, technical roadmap engineering validations, Architectures and Assessment traceability matrices.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

- Joint and Coalition interoperability trials - Joint End-to-End prototyping trials, and joint/coalition interoperability demonstrations, interoperability assessments and metrics, and interoperability studies via the Coalition Warrior Interoperability Demonstration (CWID). United States Navy (USN) provides funding to the general CWID operating budget and participates by operating a USN demonstration site.  
3) Compliance and alignment reports with Navy Enterprise Architecture/Data Strategy and Assistant Secretary of the Navy for Research, Development, and Acquisition system engineering policies generated during Systems Engineering Technical Reviews (SETRs).

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> C4ISR SYSTEMS ENGINEERING</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>FY 2011 Accomplishments:</b>                      -Navy Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Transformation/ Strategic Planning within Navy/Joint/Department of Defense Framework: Assessed existing and emerging capabilities; developed and evaluated Navy-wide policies, plans, requirements, and compliance; developed integration and investment strategies; and accelerated innovation, testing, assessment and fielding of material and non-material solutions for enhanced operational capability, joint/allied/coalition interoperability and application/enforcement of enterprise requirements/architectures/standards toward greater Net-Centric Operations/Warfare capability.                      -Implemented and validated interoperability requirements: Performed Systems Engineering Technical Reviews utilizing validated assessment tools and system engineering methodologies to ensure standard engineering processes (e.g., Information Assurance , data strategy, architecture, modeling, Service Oriented Architecture development were developed and utilized to ensure minimized design and testing risk as well as interoperability compliance to statutory and regulatory directives and guidance.                      -Conducted document reviews (of Systems Engineering Plans, Information Support Plans, Interoperability Control Document/ Competitive Design Development/Consolidated Programming Document, Information Assurance Strategies, Acquisition Strategies, etc.) for Office of the Chief of Naval Operations, Assistant Secretary of the Navy for Research, Development and Acquisition, and the Program Executive Offices, and other services to ensure sound systems engineering analysis and design principles have been applied to system planning requirements, design, testing, and supportability.                      -Performed engineering evaluation and provided buy/no-buy decisions for proposed Deviations from Specification for afloat platforms to determine performance and operational impacts of the proposed change and their effects on the platforms mission.                      -Provided engineering evaluation and validation of Business Information Technology (IT) applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval enterprise.                      - Provided engineering evaluation and validation of programs and ensure adherence to technical standards in the following technical domains- communications, networks, Information Storage and Retrieval/Information Surveillance Reconnaissance/ Information Operations, afloat platforms (both large and small decks), submarines, shore and Maintenance Operations Center capability, command and control, and space systems.</p>	4.329 0	3.331 0	3.351 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

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

	FY 2011	FY 2012	FY 2013
<p>-Conducted platform technical evaluations through design and testing analysis ensuring C4ISR delivery to the platform (shore, surface ship, submarine) is validated to meet the operational need and is interoperable with platform, force level, joint/allied/coalition forces.</p> <p><b>FY 2012 Plans:</b></p> <p>-Continue Navy C4ISR and Information Dominance Transformation/Strategic Planning within Navy/Joint/Department of Defense Framework: Assess existing and emerging capabilities; develop and evaluate Navy-wide policies, plans, requirements, and compliance; develop integration and investment strategies; and accelerate innovation, testing, assessment and fielding of material and non-material solutions for enhanced operational capability, joint/allied/coalition interoperability and application/enforcement of enterprise requirements/architectures/standards toward greater Net-Centric Operations/Warfare and Information Dominance capability.</p> <p>-Establish, develop, and validate interoperability requirements: Continue to perform Systems Engineering Technical Reviews (SETRs) utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and requirements (e.g., Information Assurance, data strategy, architecture, modeling, Open Architecture, Configuration Management, Service Oriented Architecture development, Anti-tamper, etc) ensuring interoperability compliance to statutory and regulatory directives and guidance. Ensure continuous improvement of SETR Checklists by incorporating the latest policy, guidance, standards, and specifications.</p> <p>-Perform System of Systems and platform technical evaluations to establish the alignment with the N2/N6 Information Dominance vision and identify performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability.</p> <p>-Continue to conduct document reviews (of Systems Engineering Plans, Information Support Plans, Interoperability Control Document/Competitive Design Development/Consolidated Programming Document, Information Assurance Strategies, Acquisition Strategies, etc.) for Office of the Chief of Naval Operations, Assistant Secretary of the Navy for Research, Development and Acquisition, and the Program Executive Offices, and other services to ensure sound systems engineering analysis and design principles have been applied to system planning requirements, design, testing, and supportability.</p> <p>-Continue to perform engineering evaluation and provide buy/no-buy decisions for proposed Deviations from Specification for afloat platforms to determine performance and operational impacts of the proposed change and their effects on the platforms mission.</p> <p>-Continue to provide engineering evaluation and validation of Business Information Technology (IT) applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval Enterprise.</p> <p>- Provide engineering evaluation and validation of programs and ensure adherence to technical standards in the following technical domains- communications, networks, Information Storage and Retrieval/Information Surveillance Reconnaissance/</p>			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

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

	FY 2011	FY 2012	FY 2013
<p>Information Operations, afloat platforms (both large and small decks), submarines, shore and Maintenance Operations Center capability, command and control, and space systems.</p> <p>-Continue to conduct Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Certifications through design and testing analysis ensuring C4ISR delivery to the platform (shore, surface ship, submarine) is validated to meet the operational need and is interoperable with platform, force level, joint/allied/coalition forces.</p> <p><b>FY 2013 Plans:</b></p> <p>-Continue Navy C4ISR and Information Dominance Transformation/Strategic Planning within Navy/Joint/Department of Defense Framework: Assess existing and emerging capabilities; develop and evaluate Navy-wide policies, plans, requirements, and compliance; develop integration and investment strategies; and accelerate innovation, testing, assessment and fielding of material and non-material solutions for enhanced operational capability, joint/allied/coalition interoperability and application/enforcement of enterprise requirements/architectures/standards toward greater Net-Centric Operations/Warfare and Information Dominance capability.</p> <p>-Continue to establish, develop, and validate interoperability requirements: Perform Systems Engineering Technical Reviews (SETRs) utilizing validated assessment tools, system engineering methodologies and SETR checklists tracing system design to standards and requirements (e.g., Information Assurance (IA), data strategy, architecture, modeling, Open Architecture, Configuration Management, Service Oriented Architectures development, Anti-tamper, etc) ensuring interoperability compliance to statutory and regulatory directives and guidance. Ensure continuous improvement of SETR Checklists by incorporating the latest policy, guidance, standards, and specifications.</p> <p>-Perform System of Systems and platform technical evaluations to integrate the alignment with the N2/N6 Information Dominance vision and identify performance and operational risks associated with the integration of multiple systems to provide a robust, mission based capability.</p> <p>-Continue to conduct document reviews (of Systems Engineering Plans, Information Support Plans, Interoperability Control Document/Competitive Design Development/Consolidated Programming Document, IA Strategies, Acquisition Strategies, etc.) for Office of the Chief of Naval Operations, Assistant Secretary of the Navy for Research, Development and Acquisition, and the Program Executive Offices, and other services to ensure sound systems engineering analysis and design principles have been applied to system planning requirements, design, testing, and supportability.</p> <p>-Continue to perform engineering evaluation and provide buy/no-buy decisions for proposed Deviations from Specification for afloat platforms to determine performance and operational impacts of the proposed change and their effects on the platforms mission.</p> <p>-Continue to provide engineering evaluation and validation of Business Information Technology (IT) applications and IT infrastructure in order to combine, consolidate, and eliminate unnecessary or underutilized business systems for the Naval enterprise.</p>			



**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>		<b>FY 2013</b>
---	----------------	----------------	--	----------------

<p>-Continue to provide engineering evaluation and validation of programs and ensure adherence to technical standards in the following technical domains- communications, networks, Information Storage and Retrieval/Information Surveillance Reconnaissance/Information Operations, afloat platforms (both large and small decks), submarines, shore and Maintenance Operations Center capability, command and control, and space systems.</p> <p>-Continue to conduct Command, Control, Communications, Computers, Intelligence (C4I) Certifications through design and testing analysis ensuring C4I delivery to the platform (shore, surface ship, submarine) is validated to meet the operational need and is interoperable with platform, force level, joint/allied/coalition forces.</p>				
--	--	--	--	--

<b>Title:</b> COALITION WARRIOR INTEROPERABILITY DEMONSTRATION (CWID)	1.640	1.535		1.475
<b>Articles:</b>	0	0		0

**FY 2011 Accomplishments:**

- Demonstrated cutting-edge industry and government technologies and transitioned them to the end-user, including Non-Governmental Organizations, coalition partners, and the joint services.
- Provided interoperability between existing and cutting-edge Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems. End-users benefitted from specific C4ISR information, not previously possessed in its pre-fused and uncorrelated state, but nonetheless required to complete their various missions. This newly-interoperable fused information was critical in supporting tactical and strategic decision making and operational execution, directly impacting the outcome of ongoing global conflicts.
- Integrated directly with Program Executive Office Command, Control, Communications, Computers, Intelligence (C4I) and the combatant commanders at the Technical Director, Acquisition Program Manager, and Science Advisor levels, and the State and Federal First Responder Agencies at all levels.
- Commenced with technology selection, experimental objective design, and experiment execution to influence and direct design efforts, focused on satisfying war fighter capability gaps. Year-round connectivity was maintained with end-users, vetting capability requirements and ongoing technology efforts relevant to each organization.
- Experiment results were directly integrated into developmental design and engineering efforts of individual technologies to accelerate the delivery of needed capability based on Joint Urgent Operational Need Statements (JUONs).
- Utilized operationally-relevant classified laboratory environments for joint and coalition war fighter technology experiments, while real-world field environments were utilized for technologies related to Humanitarian Assistance Disaster Relief, Homeland Security, and Homeland Defense.

**FY 2012 Plans:**

- Continue to demonstrate cutting-edge industry and government technologies and transition them to the end-user, including Non-Governmental Organizations (NGOs), coalition partners, and the joint services.

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012				
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>		<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>						
<p>-Continue to provide interoperability between existing and cutting-edge Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems. Continue to integrate directly with Program Executive Office C4I and the combatant commanders at the Technical Director, Acquisition Program Manager, and Science Advisor levels, and the State and Federal First Responder Agencies at all levels.</p> <p>-Continue with technology selection, experimental objective design, and experiment execution to influence and direct design efforts, to satisfy some war fighter capability gaps. Year-round connectivity will be maintained with end-users, vetting capability requirements and ongoing technology efforts relevant to each organization.</p> <p>-Experiment results will continue to be directly integrated into developmental design and engineering efforts of individual technologies to accelerate the delivery of needed capability based on JUONs.</p> <p>-Utilize operationally-relevant classified laboratory environments for joint/ coalition war fighter technology experiments, while real-world field environments will be utilized for technologies related to Humanitarian Assistance Disaster Relief, Homeland Security, and Homeland Defense.</p> <p><b>FY 2013 Plans:</b></p> <p>-Develop coalition and interagency interoperability and information sharing through coalition engagement, technology, demonstrations, and assessments leading to improvements of C4ISR systems within the Navy and in conjunction with Joint Services and Coalition efforts.</p> <p>-Demonstrate cutting-edge industry and government technologies and transition them to the end-user, including NGOs, coalition partners, and the joint services.</p> <p>-Continue to provide interoperability between existing and cutting-edge C4ISR systems. Integrate directly with Navy Program Managers (i.e. Program Executive Office Command, Control, Communications, Computers, Intelligence and the combatant commanders at the Technical Director, Acquisition Program Manager, and Science Advisor levels, and the State and Federal First Responder Agencies at all levels.</p> <p>-Validate technology selection, experimental objective design, and experiment execution to influence and direct design efforts, to satisfy some warfighter capability gaps. Year-round connectivity will be maintained with end-users, vetting capability requirements and ongoing technology efforts relevant to each organization.</p> <p>-Experiment results will continue to be directly integrated into developmental design and engineering efforts of individual technologies to accelerate the delivery of needed capability based on Joint Urgent Operational Needs.</p> <p>-Establish operationally relevant classified laboratory environments for joint/coalition war fighter technology experiments, while real-world field environments will be created for emergent naval technologies related to Humanitarian Assistance Disaster Relief, Homeland Security, and Homeland Defense.</p>				<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> SYSTEMS ENGINEERING AND INTEGRATION REVITALIZATION				1.090	1.226	1.193
<b>Articles:</b>				0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012			
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>		<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b><i>FY 2011 Accomplishments:</i></b></p> <ul style="list-style-type: none"> <li>- Implemented system engineering capability recommendations.</li> <li>- Provided increased access to systems engineering training resources.</li> </ul> <p><b><i>FY 2012 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Continue to implement system engineering capability recommendations.</li> <li>- Continue to provide increased access to systems engineering training resources.</li> </ul> <p><b><i>FY 2013 Plans:</i></b></p> <ul style="list-style-type: none"> <li>-Begin transition of system engineering capability into a System of Systems (SoS) engineering view.</li> <li>-Implement SoS integration certification in support of platform level design.</li> <li>-Develop and conduct pilot SoS engineering development training.</li> </ul>					
<p><b><i>Title:</i></b> SYSTEMS ENGINEERING STANDARDS AND PROCESSES</p> <p align="right"><b><i>Articles:</i></b></p>			2.805 0	3.153 0	3.066 0
<p><b><i>FY 2011 Accomplishments:</i></b></p> <ul style="list-style-type: none"> <li>-Defined the interfaces between program office systems engineering and enterprise systems engineering and optimized the total value of systems engineering in product delivery.</li> <li>-Developed processes to inject systems engineering discipline into the acquisition cycle earlier.</li> <li>-Incorporated lessons learned from recent and emerging program issues.</li> </ul> <p><b><i>FY 2012 Plans:</i></b></p> <ul style="list-style-type: none"> <li>-Continue to define and implement technical authority for the interfaces between program office systems engineering and enterprise systems engineering and optimize the total value of systems engineering in product delivery.</li> <li>-Continue to develop processes to inject systems engineering discipline into the acquisition cycle earlier.</li> <li>-Continue to incorporate lessons learned from recent and emerging program issues.</li> </ul> <p><b><i>FY 2013 Plans:</i></b></p> <ul style="list-style-type: none"> <li>-Develop processes to integrate System of Systems engineering technical assessments to identify cross system dependencies.</li> <li>-Incorporate lessons learned from prior year system engineering efforts to ensure multi-systems processes are intuitive and meet the mission of the Navy.</li> </ul>					
<b>Accomplishments/Planned Programs Subtotals</b>			9.864	9.245	9.085
<b>C. Other Program Funding Summary (\$ in Millions)</b>					
N/A					

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>

**D. Acquisition Strategy**

Space and Electronic Warfare (SEW) Engineering is a non-acquisition program that develops, tests, implements technical authority, and validates naval Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR); provides integrated architecture products and supports C4ISR systems engineering processes and standards.

**E. Performance Metrics**

In FY12 and FY13, the SEW engineering program will employ rigorous and consistent system engineering practices to support development and deployment of shipboard, undersea, and land based capabilities based on mission and performance requirements, integrated enterprise architectures, model-validated solutions, and sustainment and supportability needs for the Command and Control, Intelligence, Networks, Communications, Space, and Business Information Technology domains.

Coalition Warrior Interoperability Demonstration (CWID) Performance Metrics: Three key metrics: (1) Interoperability and compliance with naval, joint, coalition and other non-governmental organization architectures, systems and equipment; (2) Compliance with Defense Information Services Agency, National Security Agency, and other joint and coalition information assurance and security standards; and (3) war fighter utility assessment across the joint and coalition spectrum. Specific metrics validate performance of individual technologies participating in CWID.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Development Support	Various	Various:Various	4.554	-		-		-		-	0.000	4.554	
SEW/C4I Technology Integration	Various	Various:Various	12.985	-		-		-		-	0.000	12.985	
MDA Prototype SE Support	Various	Various:Various	17.376	-		-		-		-	0.000	17.376	
Systems Engineering & Integration Revitalization	Various	Various:Various	2.174	-		-		-		-	0.000	2.174	
Systems Engineering & Integration Revitalization	C/CPFF	Unknown:Unknown	-	0.565	Feb 2012	0.550	Feb 2013	-		0.550	Continuing	Continuing	Continuing
Systems Engineering & Integration Revitalization	C/CPFF	METRON:Reston, VA	0.316	-		-		-		-	0.000	0.316	
Systems Engineering & Integration Revitalization	C/CPFF	SAIC:San Diego, CA	0.316	-		-		-		-	0.000	0.316	
Systems Engineering & Integration Revitalization	WR	SSC LANT:Charleston, NC	0.133	0.184	Feb 2012	0.180	Feb 2013	-		0.180	Continuing	Continuing	Continuing
Systems Engineering & Integration Revitalization	WR	SSC PAC:San Diego, CA	0.343	0.461	Feb 2012	0.467	Feb 2013	-		0.467	Continuing	Continuing	Continuing
Systems engineering Standards & Processes	Various	Various:Various	5.588	-		-		-		-	0.000	5.588	
Systems engineering Standards & Processes	C/CPFF	Unknown:Unknown	-	1.454	Feb 2012	1.389	Feb 2013	-		1.389	Continuing	Continuing	Continuing
Systems engineering Standards & Processes	C/CPFF	METRON:Reston, VA	0.813	-		-		-		-	0.000	0.813	
Systems engineering Standards & Processes	C/CPFF	SAIC:San Diego, CA	0.812	-		-		-		-	0.000	0.812	
Systems engineering Standards & Processes	WR	SSC LANT:Charleston, NC	0.342	0.474	Feb 2012	0.462	Feb 2013	-		0.462	Continuing	Continuing	Continuing
Systems engineering Standards & Processes	WR	SSC PAC:San Diego, CA	0.884	1.233	Feb 2012	1.200	Feb 2013	-		1.200	Continuing	Continuing	Continuing
Systems A&E and Validation	Various	Various:Various	13.188	-		-		-		-	0.000	13.188	
Distributed C2 Interoperability Requirement analysis	Various	Various:Various	16.583	-		-		-		-	0.000	16.583	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
C4ISR Architecture and Standards	Various	Various:Various	14.268	-		-		-		-	0.000	14.268	
End-to-End System Engineering and Integrated Design	Various	Various:Various	10.994	-		-		-		-	0.000	10.994	
Info. Repository/Naval Architecture	Various	Various:Various	4.000	-		-		-		-	0.000	4.000	
C4ISR Systems Engineering	Various	Various:Various	5.157	-		-		-		-	0.000	5.157	
C4ISR Systems Engineering	WR	NSWC Dahlgren:Dahlgren, MD	-	0.309	Feb 2012	0.311	Feb 2013	-		0.311	0.000	0.620	
C4ISR Systems Engineering	MIPR	DISA:Pensacola, FL	-	0.088	Feb 2012	0.089	Feb 2013	-		0.089	0.000	0.177	
C4ISR Systems Engineering	C/CPFF	ComGlobal:San Diego, CA	2.200	1.979	Feb 2012	1.993	Feb 2013	-		1.993	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	SSC LANT:Charleston, NC	0.440	-		-		-		-	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	SSC PAC:San Diego, CA	1.188	0.963	Feb 2012	0.969	Feb 2013	-		0.969	Continuing	Continuing	Continuing
C4ISR Systems Engineering	WR	NAVAIR:Patuxent River, MD	0.088	-		-		-		-	Continuing	Continuing	Continuing
C4ISR Systems Engineering	MIPR	CECOM:Fort Monmouth, NJ	0.264	-		-		-		-	Continuing	Continuing	Continuing
C4ISR Systems Engineering	MIPR	AF:Hill AFB, UT	0.220	-		-		-		-	Continuing	Continuing	Continuing
<b>Subtotal</b>			115.226	7.710		7.610		-		7.610			

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SEW Eng/CWID	Various	Various:Various	30.171	-		-		-		-	0.000	30.171	

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
SEW Eng/CWID	MIPR	Defense Information Systems Agency:Arlington, VA	0.107	0.067	Apr 2012	0.065	Apr 2013	-		0.065	Continuing	Continuing	Continuing
SEW Eng/CWID	WR	Joint Interoperability Test Command:Fort Huachuca, AZ	0.720	0.595	Mar 2012	0.573	Mar 2013	-		0.573	Continuing	Continuing	Continuing
SEW Eng/CWID	WR	SSC Pacific:San Diego, CA	0.758	0.758	Dec 2011	0.727	Dec 2012	-		0.727	Continuing	Continuing	Continuing
SEW Eng/CWID	MIPR	US Northern Command:Peterson AFB, CO	0.115	0.115	Jan 2012	0.110	Jan 2013	-		0.110	Continuing	Continuing	Continuing
SEW Eng/JRAE	Various	Various:Various	15.978	-		-		-		-	0.000	15.978	
<b>Subtotal</b>			47.849	1.535		1.475		-		1.475			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
ACQ Workforce Fund	Various	Various:Various	0.071	-		-		-		-	0.000	0.071	
<b>Subtotal</b>			0.071	-		-		-		-	0.000	0.071	

	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>		163.146	9.245		9.085	-		9.085			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>
---	--	---

Proj 2144	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Empty table body for data entry																												

2013PB - 0604707N - 2144



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2144: <i>Space &amp; Elec Warfare Engineering</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 2144</b>				
CWID: Schedule as directed by the Joint Management Office (JMO) during execution year.	1	2011	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2356: <i>Maritime Concept Generation &amp; Development</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2356: <i>Maritime Concept Generation &amp; Development</i>	-	-	8.323	-	8.323	8.432	9.178	7.800	8.729	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Beginning in FY-13 this project is funded to replace Project 2357 (Maritime Battle Center), and more accurately reflect the current mission of Navy Warfare Development Command (NWDC) experimentation. Funding projected for Project 2357 will be moved to Project 2356.

**A. Mission Description and Budget Item Justification**

Funds the development of new or improved war fighting capabilities through the Concept Generation and Concept Development (CG/CD) program. The priorities for the CG/CD program are to explore near/far-term technological and non-technological solutions to war fighting gaps across all naval warfare areas. The CG/CD experimentation efforts include planning, systems engineering and integration, execution, data collection, analysis, and assessment requirements for a wide range of experiment venues, such as workshops, seminars, wargames, limited objective experiments, limited technical experiments, and live force events. Where appropriate, CG/CD experimentation will be conducted in a joint, or coalition environment.

Also supports the fleet's experimentation program (Fleet Experimentation - FLEX) by providing planning, systems engineering and integration, execution, data collection, and analysis support to the Mission/Warfare Area Office of Primary Responsibility where appropriate and as available. This support is focused on experimentation contained in the annual Sea Trial Execution Plan.

This program historically does not meet established execution benchmarks. It differs from other Research, Development, Test and Evaluation (RDT&E) programs because it relies upon fleet participation, and thus is scheduled around fleet or staff availability. Because that availability frequently occurs during the spring and summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice. As a result, this project's obligation rates do not begin to approach benchmark until the program nears the fiscal year's end while its expenditure rates generally do not approach benchmark until midway through the second year of its appropriation.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> New Accomplishment/Planned Program Entry	-	-	8.323
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Continue all FY 2012 efforts started under Project 2357 and carry forward.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2356: <i>Maritime Concept Generation &amp; Development</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Initiate and execute Concept Generation and Concept Development (CG/CD), to include experimentation, as directed by the CNO, the CG/CD Innovation Council, and Commander NWDC.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	8.323

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

N/A

**D. Acquisition Strategy**

There is no acquisition strategy - this is not an acquisition program nor is materiel purchased with this funding. This funding is used to buy people to generate/develop/validate concepts, or to build and analyze the results of experiments focused on improved processes and tactics/techniques/procedures to mitigate identified war fighting gaps. The majority of this funding buys a core group of contractors who provide experiment design, execution and analysis support while the remainder is used to buy specific skill sets that are not part of the core group, and also cover some of the engineering and integration costs associated with certain experiments.

**E. Performance Metrics**

Maritime Concept Generation and Development:

- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature Sea Shield, Sea Strike, Sea Basing, and Info Dominance concepts, technologies, and doctrine.
- Focus on near, mid and long term war fighting challenges to realize increased war fighting effectiveness.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2356: <i>Maritime Concept Generation &amp; Development</i>
---	--	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test and Evaluation	MIPR	Defense Technical Information Center:Ft Belvoir VA	-	-		2.000	Oct 2012	-		2.000	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	SPAWARSSYSCEN Atlantoic:Charleston SC	-	-		2.195	Jan 2013	-		2.195	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	Naval Underwater Warfare Center:Newport RI	-	-		0.500	Mar 2013	-		0.500	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	Naval Postgraduate School:Monterey CA	-	-		0.500	May 2013	-		0.500	Continuing	Continuing	Continuing
System Test and Evaluation	C/FFP	Navy Warfare Development Command:Norfolk VA	-	-		1.858	Nov 2012	-		1.858	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		7.053		-		7.053			

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/FFP	Navy Warfare Development Command:Norfolk VA	-	-		1.270	Oct 2012	-		1.270	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		1.270		-		1.270			

	Total Prior Years Cost	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		-	-	8.323	-	8.323		

**Remarks**



**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2356: <i>Maritime Concept Generation &amp; Development</i>
---	--	--

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Proj 2356</i></b>				
Maritime Concept Generation and Development Efforts: Leveraging the Undersea Environment Concept Development	1	2013	4	2017
Maritime Concept Generation and Development Efforts: Anti Access Area Denial Concept Development	2	2013	4	2017
Maritime Concept Generation and Development Efforts: Command and Control in a Denied or Degraded Environment Concept Development	3	2013	4	2017

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2357: <i>Maritime Battle Center</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2357: <i>Maritime Battle Center</i>	21.081	8.848	-	-	-	-	-	-	-	0.000	29.929
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Sea Trial funding has been moved to a new project - 3319 Fleet Experimentation. The funding decrease in FY 2012 is due to realignment of funds to the new project.

**A. Mission Description and Budget Item Justification**

Funds the development of new or improved war fighting capabilities through the Concept Generation and Concept Development (CG/CD) program. The priorities for the CG/CD program are to explore near-/far-term technological and non-technological solutions to war fighting gaps across all naval warfare areas. The CG/CD experimentation efforts include planning, systems engineering and integration, execution, data collection, analysis, and assessment requirements for a wide range of experiment venues, such as workshops, seminars, wargames, limited objective experiments, limited technical experiments, and live force events. Where appropriate, CG/CD experimentation will be conducted in a joint, or coalition environment.

Also supports the fleet's experimentation program (Sea Trial) by providing planning, systems engineering and integration, execution, data collection, and analysis support to the Sea Trial Operational Agents where appropriate and as available. This support is focused on experimentation contained in the annual Sea Trial Execution Plan.

This program historically does not meet established execution benchmarks. It differs from other Research, Development, Test and Evaluation (RDT&E) programs because it relies upon fleet participation, and thus is scheduled around fleet or staff availability. Because that availability frequently occurs during the spring and summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice. As a result, this project's obligation rates do not begin to approach benchmark until the program nears the fiscal year's end while its expenditure rates generally do not approach benchmark until midway through the second year of its appropriation.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> FBE ANALYSIS AND CORE SUPPORT	21.081	8.848	-
<b>Articles:</b>	0	0	
<b>Description:</b> Because of the synergistic relationship between Maritime Battle Center experimentation efforts and the fleet's Sea Trial experimentation efforts, funding for both endeavors have been combined under one project, the Maritime Battle Center. The Sea Trial aspect of this project's mission is driven by annual priorities. The priorities are further prioritized and approved by the Sea Trial Executive Steering Group (STESG).			
<b>FY 2011 Accomplishments:</b>			
- Continued participation in Joint Forces Command (JFCOM) experimentation continuum			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2357: <i>Maritime Battle Center</i>
---	--	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
<ul style="list-style-type: none"> <li>- Continued Limited Objective Experiments.</li> <li>- Continued CONOPS Development Experiments.</li> <li>- Continued the Sonar/Radar Data Comparison experiment.</li> <li>- Continued the Millimeter Wave Chaff experiment.</li> <li>- Continued the Surface Action Group Modeling experiment.</li> <li>- Continued the Harpoon Seeker Modeling in an Electronic Attack environment experiment.</li> <li>- Continued the Fast Attack Craft/Fast Inshore Attack Craft experiment.</li> <li>- Continued the multi-year series of Littoral Force Protection experiments.</li> <li>- Continued the final spiral of the multi-year series of Tactical Tomahawk 3rd Party Targeting experiments.</li> <li>- Continued the multi-year series of Surface Ship Periscope Detection experiments.</li> <li>- Continued the multi-year series of Submarine Unmanned Aerial System experiments.</li> <li>- Continued the multi-year series of Submarine Communications at Speed and Depth experiments.</li> <li>- Continued the multi-year series of Mine Countermeasures in Support of Homeland Defense experiments.</li> <li>- Continued the multi-year series of Littoral Combat Ship Mine Warfare Mission Modules experiments.</li> <li>- Continued the multi-year series of SPIKE experiments.</li> <li>- Continued the Sonar Active Target Evaluation experiment.</li> <li>- Continued the multi-year series of Project Guillotine experiments.</li> <li>- Continued the multi-year series of Submarine/Unmanned Underwater Vehicle Communications experiments.</li> <li>- Initiated and executed Sea Trial Experiments, War Games, and Seminars based on the Execution Plan 11, currently being developed.</li> <li>- Initiated and executed experiments in support of the CNO-directed Concept Generation and Concept Development effort.</li> </ul> <p><b>FY 2012 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue all FY 2011 efforts.</li> <li>- Initiate and execute Sea Trial Experiments, War Games, and Seminars based on the Execution Plan 12.</li> </ul>			
<b>Accomplishments/Planned Programs Subtotals</b>	21.081	8.848	-

**C. Other Program Funding Summary (\$ in Millions)**  
N/A

**D. Acquisition Strategy**  
There is no acquisition strategy - this is not an acquisition program nor is materiel purchased with this funding. This funding is used to buy people to generate/develop/validate concepts, or to build and analyze the results of experiments focused on improved processes and tactics/techniques/procedures to mitigate identified war



UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0604707N: <i>SEW Architecture/Eng Support</i>	2357: <i>Maritime Battle Center</i>

fighting gaps. The majority of this funding buys a core group of contractors who provide experiment design, execution and analysis support while the remainder is used to buy specific skill sets that are not part of the core group, and also cover some of the engineering and integration costs associated with certain experiments.

**E. Performance Metrics**

Maritime Battle Center:

- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature Sea Shield, Sea Strike, Sea Basing, and FORCEnet concepts, technologies, and doctrine.
- Focus on near, mid and long term war fighting challenges to realize increased war fighting effectiveness.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2357: <i>Maritime Battle Center</i>
---	--	---

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
System Test and Evaluation	MIPR	Defense Technical Information Center:Ft Belvoir VA	248.277	-		-		-		-	0.000	248.277	248.277
System Test and Evaluation	C/FFP	NAVSEA:Washington DC	2.000	-		-		-		-	0.000	2.000	2.000
System Test and Evaluation	C/FFP	SPAWAR:San Diego CA	2.000	2.012	Jan 2012	-		-		-	0.000	4.012	4.012
System Test and Evaluation	C/FFP	SPAWARSYSCEN Atlantic:Charleston SC	3.500	2.500	Mar 2012	-		-		-	0.000	6.000	6.000
System Test and Evaluation	C/FFP	SPAWARSYSCEN Pacific:San Diego CA	2.000	-		-		-		-	0.000	2.000	2.000
System Test and Evaluation	C/FFP	Naval Underwater Warfare Center:Newport RI	1.000	-		-		-		-	0.000	1.000	1.000
System Test and Evaluation	C/FFP	Naval Surface Warfare Center:CA, IN, MD, VA	1.500	-		-		-		-	0.000	1.500	1.500
System Test and Evaluation	C/FFP	Naval Postgraduate School:Monterey CA	2.000	-		-		-		-	0.000	2.000	2.000
System Test and Evaluation	C/FFP	Navy Warfare Development Command:Norfolk VA	3.882	3.000	Jan 2012	-		-		-	0.000	6.882	6.882
<b>Subtotal</b>			266.159	7.512		-		-		-	0.000	273.671	273.671

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management	C/FFP	Navy Warfare Development Command:Norfolk VA	51.063	1.336	Jan 2012	-		-		-	0.000	52.399	52.428
Program Management	C/FFP	Naval Postgraduate School:Monterey CA	1.000	-		-		-		-	0.000	1.000	1.000



**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2357: <i>Maritime Battle Center</i>
---	--	---

Experimentation Efforts	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Navy Continuous Training Environment																																
Distributed Netted Systems in the conduct of Anti-Submarine Warfare																																
Modeling and simulation of events and wargaming																																

2013PB - 0604707N - 2357

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 2357: <i>Maritime Battle Center</i>
---	--	---

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Experimentation Efforts</i></b>				
Navy Continuous Training Environment	1	2011	2	2012
Distributed Netted Systems in the conduct of Anti-Submarine Warfare	1	2011	2	2012
Modeling and simulation of events and wargaming	1	2011	2	2012

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 3319: <i>Fleet Experimentation</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3319: <i>Fleet Experimentation</i>	-	14.688	13.369	-	13.369	13.793	16.930	15.337	14.136	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**Note**

Since FY06 the funding for Fleet Experimentation (Sea Trial) has been contained in Project 2357 - Maritime Battle Center. In FY12 Project 2357 has been split with the funding for Navy Warfare Development Command (NWDC) experimentation remaining in 2357 while Fleet Experimentation (Sea Trial) funding has been moved to this new project - 3319 Fleet Experimentation. The funding beginning in FY 2012 is due to that realignment and is a transfer from Project 2357.

**A. Mission Description and Budget Item Justification**

The mission of the Sea Trial (Fleet Experimentation) program is the development of new or improved war fighting capabilities. Sea Trial evaluates and validates emerging Navy concepts, concepts of operations (CONOPS), doctrine and technologies through focused experimentation, rigorous analysis, and assessment and is dedicated to providing solutions to near term (within the Fiscal Year Defense Plan) war fighting gaps. Sea Trial efforts are prioritized by the flag level Sea Trial Executive Steering Group (STESG), approved by Commander, U.S. Fleet Forces, and contained in the Sea Trial annual execution plan.

Sea Trial conducts experiments that examine both technological and non-technological solutions to war fighting gaps across all naval warfare areas. Sea Trial experiments run the gamut from workshops and seminars to fleet experiments, and involve all facets of experimentation including planning, systems engineering and integration, execution, data collection, analysis, and assessment. While Navy-centric, Sea Trial efforts include joint and coalition partners when appropriate.

This program historically does not meet established execution benchmarks. Sea Trial experimentation differs from other Research, Development, Test and Evaluation (RDT&E) programs because it is based upon Fleet operational availability vice independently scheduled through war fighting labs. Because Fleet experimentation frequently must occur during the spring and summer operational schedules, the overall RDT&E obligation/expenditure rates do not align with OSD practice. As a result, Sea Trial's obligation rates do not begin to approach benchmark until the program nears the fiscal year's end while its expenditure rates generally do not approach benchmark until midway through the second year of its appropriation.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Fleet Experimentation	-	14.688	13.369
<b>Articles:</b>		0	0
<b>FY 2012 Plans:</b>			
- Initiate and complete experiments in support of the CNO-directed Concept Generation and Concept Development program.			
- Initiate and complete experiments tasked by U.S. Fleet Forces in support of Fleet Experimentation.			
<b>FY 2013 Plans:</b>			
- Initiate and complete experiments in support of the CNO-directed Concept Generation and Concept Development program.			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 3319: <i>Fleet Experimentation</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
- Initiate and complete experiments tasked by U.S. Fleet Forces in support of Fleet Experimentation			
<b>Accomplishments/Planned Programs Subtotals</b>	-	14.688	13.369

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

N/A

**D. Acquisition Strategy**

There is no acquisition strategy - this is not an acquisition program nor is materiel purchased with this funding. This funding is used for between 30 and 40 experimental initiatives annually, focused on addressing fleet identified capability gaps, and primarily buys the people to design and execute the experiments and analyze the results.

**E. Performance Metrics**

Fleet Experimentation:

- Refine concepts and identify key performance levels necessary for implementation.
- Demonstrate feasibility and discriminate among competing concepts and implementation alternatives.
- Understand potential military effectiveness and risk.
- Evaluate how much of the new capability and attendant force structure is needed.
- Learn how to operate the new force and combine it with the legacy force.
- Develop recommended Doctrine, Organization, Training, Materiel, Leadership, and Personnel (DOTMLP) changes.
- Develop fleet war fighting requirements for submission to the OPNAV Navy Capabilities Development Process (NCDP) to inform Navy acquisition decisions.
- Integrate emergent concepts and technologies, leading to rapid introduction of needed war fighting capabilities in the fleet.
- Rapidly mature Sea Shield, Sea Strike, Sea Basing, and FORCEnet concepts, technologies, and doctrine.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 3319: <i>Fleet Experimentation</i>
---	--	--

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Systems Test and Evaluation	MIPR	Defense Technical Information Center:Ft Belvoir VA	-	1.000	Jan 2012	1.350	Oct 2012	-		1.350	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	NAVSEA:Washington DC	-	2.000	Jun 2012	0.600	Jun 2013	-		0.600	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	SPAWAR:San Diego CA	-	1.838	Mar 2012	2.000	Oct 2012	-		2.000	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	SPAWARSYSCEN Atlantic:Charleston SC	-	1.823	Mar 2012	1.250	Jan 2013	-		1.250	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	SPAWARSYSCEN Pacific:San Diego CA	-	2.300	Mar 2012	2.200	Oct 2012	-		2.200	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Naval Underwater Warfare Center:Newport RI	-	0.500	Jan 2012	0.750	Nov 2012	-		0.750	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Naval Surface Warfare Center:CA, IN, MD, VA	-	1.000	Jun 2012	1.401	Mar 2013	-		1.401	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Naval Postgraduate School:Monterey CA	-	1.500	Jun 2012	1.400	Jan 2013	-		1.400	Continuing	Continuing	Continuing
Systems Test and Evaluation	C/FFP	Navy Warfare Development Command:Norfolk VA	-	0.500	Mar 2012	0.358	Mar 2013	-		0.358	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	12.461		11.309		-		11.309			

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Program Management	C/FFP	SPAWAR:San Diego CA	-	1.527	Jan 2012	0.810	Dec 2012	-		0.810	Continuing	Continuing	Continuing
Program Management	C/FFP	Naval Postgraduate School:Monterey CA	-	0.700	Jun 2012	0.750	Nov 2012	-		0.750	Continuing	Continuing	Continuing







**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604707N: <i>SEW Architecture/Eng Support</i>	<b>PROJECT</b> 3319: <i>Fleet Experimentation</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Fleet Experimentation Efforts</i></b>				
Trident Warrior and Info Dominance experiments	2	2012	4	2017
Anti-Submarine Warfare experiments	3	2012	4	2017
Maritime Laser Weapons experiments	2	2012	4	2017
Integrated Air and Missile Defense experiments	1	2012	4	2017
Command and Control experiments	2	2012	4	2017
Unmanned Systems experiments	1	2012	4	2017

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604775N: <i>Defense Rapid Innovation Program</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	104.466	-	-	-	-	-	-	-	-	0.000	104.466
9999: <i>Congressional Adds</i>	104.466	-	-	-	-	-	-	-	-	0.000	104.466

**Note**

This Program Element has been created to execute funds added by Congress for the Defense Rapid Innovation Program.

**A. Mission Description and Budget Item Justification**

This program element provides funds to enhance military capability, accelerate the delivery of military capability, reduce the cost of weapons systems either fielded or under development, and improve the quality of life for service personnel.

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	-	-	-	-	-
Current President's Budget	104.466	-	-	-	-
Total Adjustments	104.466	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Congressional General Reductions Adjustments	-0.534	-			
• Congressional Add Adjustments	105.000	-			

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

Congressional Add: *Rapid Innovation Program*

	FY 2011	FY 2012
Congressional Add Subtotals for Project: 9999	104.466	-
Congressional Add Totals for all Projects	104.466	-

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy DATE: February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604775N: <i>Defense Rapid Innovation Program</i>
---	--

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604775N: <i>Defense Rapid Innovation Program</i>	<b>PROJECT</b> 9999: <i>Congressional Adds</i>
---	--	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	104.466	-	-	-	-	-	-	-	-	0.000	104.466
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

This project provides funds to enhance military capability, accelerate the delivery of military capability, reduce the cost of weapons systems either fielded or under development, and improve the quality of life for service personnel.

**B. Accomplishments/Planned Programs (\$ in Millions)**

<b>Congressional Add:</b> Rapid Innovation Program	FY 2011	FY 2012
	104.466	-
<b>FY 2011 Accomplishments:</b> TBD. The Department of the Navy is still in the process of identifying requirements and determining management control processes to execute Rapid Innovation Program funds in accordance with Congressional intent and Defense Department Guidance.		
<b>Congressional Adds Subtotals</b>	104.466	-

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

N/A

**D. Acquisition Strategy**

TBD

**E. Performance Metrics**

Performance metrics are still being developed.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604786N: <i>(U)Offensive Anti-Surface Warfare Weapon Dev</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	-	-	86.801	-	86.801	44.256	88.861	138.515	198.356	Continuing	Continuing
3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>	-	-	86.801	-	86.801	44.256	88.861	138.515	198.356	Continuing	Continuing

**Note**

The Offensive Anti-Surface Warfare (OASuW) Weapon Dev program was previously funded under Program Element 0605853N, Project Unit 2221 and assigned to Budget Activity (BA) 06: RDT&E Management Support. In May of 2011, PE 0604786N PU 3337 was established as the principal budget line for the OASuW program assigned as BA 04: Advanced Component Development and Prototypes. The transition from PE 0605853N to PE 0604786N continues the transfer of program with the alignment of funding associated with the OASuW program.

**A. Mission Description and Budget Item Justification**

OASuW will be an offensive weapon system or systems solution that can be air and/or surface launched in the maritime battle space environment, and will be a vital component of the Joint Force Anti-Surface Warfare capability; and incorporate new or emergent technologies to support an increased offensive strike capability. The Analysis of Alternatives has recommended a preferred system concept and the material solution analysis will continue in FY12 to develop preferred material approaches

**B. Program Change Summary (\$ in Millions)**

	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013 Base</u>	<u>FY 2013 OCO</u>	<u>FY 2013 Total</u>
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	86.801	-	86.801
Total Adjustments	-	-	86.801	-	86.801
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	86.774	-	86.774
• Rate/Misc Adjustments	-	-	0.027	-	0.027

**Change Summary Explanation**

Technical: Funding is provided for an Offensive Anti-Surface Warfare (OASuW) Weapon system or systems solution that can be air and/or surface launched in the maritime battle space environment

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy

**DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**

1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**

PE 0604786N: *(U)Offensive Anti-Surface Warfare Weapon Dev*

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604786N: <i>(U)Offensive Anti-Surface Warfare Weapon Dev</i>	<b>PROJECT</b> 3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>	-	-	86.801	-	86.801	44.256	88.861	138.515	198.356	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

Funding is provided for an Offensive Anti-Surface Warfare (OASuW) Weapon system or systems solution that can be air and/or surface launched in the maritime battle space environment, and will be a vital component of the Joint Force Anti-Surface Warfare (ASuW) capability; and incorporate new or emergent technologies to support an increased offensive strike capability with an Initial Operational Capability (IOC) no later than 2024.

The effort is currently in the Material Solution Analysis Phase of the acquisition cycle scheduled to complete 2nd QTR FY13. Upon completion, the Department of the Navy will make a determination on a preferred material approach, the phase of the acquisition cycle it will enter and when the OASuW weapon(s) will achieve IOC.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> OASuW Accelerated Deployment	-	-	62.000
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Provide non-recurring engineering, system and software development, integration and testing of capability upgrades on multiple platforms for accelerated offensive surface warfare deployment.			
<b>Title:</b> OASuW Development Program	-	-	24.801
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Release a Request for Proposal, award for competitive prototyping, and establish a Government program team to manage and support an FY13 Technology Development (TD) Phase award(s).			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	86.801

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

N/A

**D. Acquisition Strategy**

The OASuW effort is scheduled for a milestone A decision in 2nd QTR FY13. Competitive prototyping for TD phase will be conducted if required in FY13 with TD contract award(s) in FY13.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy		DATE: February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604786N: <i>(U)Offensive Anti-Surface Warfare Weapon Dev</i>	<b>PROJECT</b> 3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>

**E. Performance Metrics**

The OASuW program is scheduled for a Milestone A decision in FY13.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604786N: <i>(U)Offensive Anti-Surface Warfare Weapon Dev</i>	<b>PROJECT</b> 3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	C/CPFF	TBD:TBD	-	-		1.000	Feb 2013	-		1.000	0.000	1.000	1.000
Product Development - Accelerated Deployment	C/CPFF	TBD:TBD	-	-		30.800	Feb 2013	-		30.800	0.000	30.800	30.800
<b>Subtotal</b>			-	-		31.800		-		31.800	0.000	31.800	31.800

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Support	WR	NAWC AD:Patuxent River,MD	-	-		7.000	Nov 2012	-		7.000	0.000	7.000	
Government Support - Accelerated Deployment	WR	NAWC AD:Patuxent River, MD	-	-		0.700	Nov 2012	-		0.700	0.000	0.700	
Government Support	WR	NAWC WD:China Lake, CA	-	-		11.421	Nov 2012	-		11.421	0.000	11.421	
Government Support - Accelerated Deployment	WR	NAWC WD:China Lake, CA	-	-		17.000	Nov 2012	-		17.000	0.000	17.000	
Government Support	WR	NSWC:Various	-	-		3.700	Nov 2012	-		3.700	0.000	3.700	
Government Support - Accelerated Deployment	WR	NSWC:Various	-	-		5.500	Nov 2012	-		5.500	0.000	5.500	
Software Development - Accelerated Deployment	C/FFP	NSMA:Navy Sys Mgt Act, VA	-	-		5.200	Dec 2012	-		5.200	0.000	5.200	5.200
Development Support - Accelerated Deployment	SS/CPFF	SAIC:San Diego, CA	-	-		0.750	Dec 2012	-		0.750	0.000	0.750	0.750
Government Support	Various	OPTVFOR:Norfolk, VA	-	-		0.500	Nov 2012	-		0.500	0.000	0.500	
Government Support - Accelerated Deployment	Various	OPTVFOR:Norfolk, VA	-	-		0.500	Nov 2012	-		0.500	0.000	0.500	
<b>Subtotal</b>			-	-		52.271		-		52.271	0.000	52.271	

**Remarks**  
 Various NSWC activities: Indian Head, Earle, Dahlgren, Corona, Point Hueneme.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604786N: <i>(U)Offensive Anti-Surface Warfare Weapon Dev</i>	<b>PROJECT</b> 3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>
---	--	--

<b>Test and Evaluation (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support - Accelerated Deployment	WR	NAWC WD:China Lake, CA	-	-		0.900	Nov 2012	-		0.900	0.000	0.900	
Development Support - Accelerated Deployment	SS/CPFF	SAIC:San Diego, CA	-	-		0.250	Dec 2012	-		0.250	0.000	0.250	0.250
<b>Subtotal</b>			-	-		1.150		-		1.150	0.000	1.150	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management Support	C/CPFF	NAWC AD:Patuxent River, MD	-	-		1.000	Dec 2012	-		1.000	0.000	1.000	1.000
Government Support - Accelerated Deployment	WR	NAWC AD:Patuxent River, MD	-	-		0.300	Nov 2012	-		0.300	0.000	0.300	
Travel	Various	NAWC AD:Patuxent River, MD	-	-		0.180	Mar 2013	-		0.180	0.000	0.180	
Travel - Accelerated Deployment	Various	NAWC AD:Patuxent River, MD	-	-		0.100	Oct 2012	-		0.100	0.000	0.100	
<b>Subtotal</b>			-	-		1.580		-		1.580	0.000	1.580	

	Total Prior Years Cost	FY 2012		FY 2013 Base	FY 2013 OCO	FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		-	-	86.801	-	86.801	0.000	86.801	

**Remarks**

**UNCLASSIFIED**

<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604786N: <i>(U)Offensive Anti-Surface Warfare Weapon Dev</i>	<b>PROJECT</b> 3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>

Offensive Anti-Surface Weapon (OASuW)	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017										
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q							
<b>Acquisition Milestones</b>																																			
Milestones	MDD ◆													MSA ▲																					
<b>Systems Development</b>																																			
OASuW Accelerated Deployment																																			
	Develop/Integrate/Test																																		
Hardware Development	TD RFP Dev								TD Down Select				TD Phase																						
Software Development																																			
Reviews					ASR ■									Final RFP ▼									SRR ■												

2013PB - 0604786N - 3337

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604786N: <i>(U)Offensive Anti-Surface Warfare Weapon Dev</i>	<b>PROJECT</b> 3337: <i>Offensive Anti-Surface Warfare (OASuW) Weapon</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Offensive Anti-Surface Weapon (OASuW)</b>				
Acquisition Milestones: Milestones: Material Development Decision (MDD)	1	2011	1	2011
Acquisition Milestones: Milestones: Milestone A (MS A)	2	2013	2	2013
Systems Development: OASuW Accelerated Deployment: Accelerated Deployment	1	2013	4	2014
Systems Development: Hardware Development: TD RFP Development	3	2011	1	2013
Systems Development: Hardware Development: TD Down Select	2	2013	4	2013
Systems Development: Hardware Development: Technical Development Phase	2	2014	4	2017
Systems Development: Hardware Development: Final RFP	1	2013	1	2013
Systems Development: Reviews: Alternative System Review (ASR)	1	2012	1	2012
Systems Development: Reviews: System Requirements Review (SRR)	3	2014	3	2014



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>				<b>R-1 ITEM NOMENCLATURE</b>							
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>							
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	-	-	44.500	-	44.500	45.000	16.000	40.100	44.300	Continuing	Continuing
3209: <i>Joint Light Tactical Vehicle</i>	-	-	44.500	-	44.500	45.000	16.000	40.100	44.300	Continuing	Continuing

**Note**

The Department submitted the PB12 budget for Joint Light Tactical Vehicle (JLTV) in PE 0603635M. PB13 is submitted in the new PE 0605812M.

**A. Mission Description and Budget Item Justification**

This Program Element (PE) funds the Joint Light Tactical Vehicle (JLTV) Family of Vehicles. Funding supports the development and testing of the JLTV Family of Vehicles (FoV), which is being developed as a joint system between the Army and the Marine Corps. International participation will be offered during the Engineering, Manufacturing and Development (EMD) phase. The JLTV goal is a FoV capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full Range of Military Operations (RoMO). JLTV objectives include increased protection and performance over the current fleet; minimizing ownership costs by maximizing commonality, fuel efficiency, reliability, and maintaining effective competition throughout the lifecycle. Commonality of components, maintenance procedures, training, etc., between vehicles is expected to be inherent in FoV solutions across mission variants to minimize FoV total ownership cost. Unique service requirements have been minimized.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	44.500	-	44.500
Total Adjustments	-	-	44.500	-	44.500
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	44.500	-	44.500
• Rate/Misc Adjustments	-	-	-	-	-

**Change Summary Explanation**

Technical: Not applicable.  
Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
3209: <i>Joint Light Tactical Vehicle</i>	-	-	44.500	-	44.500	45.000	16.000	40.100	44.300	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	15	0	0		

**Note**

Funds for JLTV transitioned from program element 0603635M to program element 0605812M beginning in FY13.

Additional hardware requirements for Engineering, Manufacturing and Development (EMD) include trailers, ballistic hulls, and kits (including armor). The prototypes, up to thirty (30), awarded in FY12 will complete fabrication and be delivered in FY13.

**A. Mission Description and Budget Item Justification**

Funding supports the development and testing of the JLTV Family of Vehicles (FoV), which is a joint program between the Army and the Marine Corps. The JLTV goal is a FoV capable of performing multiple mission roles that will be designed to provide protected, sustained, networked mobility for personnel and payloads across the full Range of Military Operations. JLTV objectives include increased protection and performance over the current fleet and minimizing ownership costs by maximizing commonality, fuel efficiency, reliability, and maintaining effective competition, throughout the lifecycle. Commonality of components, maintenance procedures, training, etc., between vehicles is expected to be inherent in FoV solutions across mission variants to minimize total ownership cost. Unique service requirements have been minimized. During FY13, major budget activities include completion of EMD prototype fabrication, delivery of the prototypes, vendor shakedown testing, Government Test Readiness Review, and initiation of Government performance testing.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Primary and Ancillary Hardware Development , Systems Engineering (SE) and Source Selection  <b>Articles:</b>	-	-	25.175 0
<b>FY 2013 Plans:</b> Contractor design & development of FoV, vendor test support, and Government Systems Engineering.			
<b>Title:</b> Test and Evaluation Events & Analysis  <b>Articles:</b>	-	-	13.788 0
<b>FY 2013 Plans:</b> Support EMD prototype T&E to include performance, RAM, ballistic & AFES, and ballistic cab & chassis testing.			
<b>Title:</b> ILS and Facilities Documentation/Analysis and Support Engineering  <b>Articles:</b>	-	-	0.888 0
<b>FY 2013 Plans:</b>			

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Continue the development of logistical documentation, GFE management, and provide oversight to programmatic and contractual issues related to logistics.			
<b>Title:</b> Program Management Support	-	-	4.649
<b>Articles:</b>			0
<b>FY 2013 Plans:</b> Continue support of program operations within the EMD phase and planning activities for MS C. Key events include the continuation of EMD contract performance and testing, as well as, the mid-point MDA review.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	44.500

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

Line Item	FY 2011	FY 2012	FY 2013			FY 2014	FY 2015	FY 2016	FY 2017	Cost To	
			Base	OCO	Total					Complete	Total Cost
• PMC/5095: <i>JLTV</i>	0.000	0.000	0.000	0.000	0.000	0.000	24.500	87.300	134.900	2,102.100	2,348.800
• RDTEA/ L04 : <i>0603804A - Log &amp; Eng Equip Adv Dev - JLTV</i>	36.408	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	36.408
• RDTEA/ L50: <i>0604804A - Log &amp; Eng Equip ENG Dev - JLTV</i>	0.000	87.217	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	87.217
• RDTEA/ VU9: <i>0605812A</i>	0.000	0.000	72.295	0.000	72.295	76.163	31.549	51.924	53.223	Continuing	Continuing
• RDTEA/ 3209: <i>0603635M - JLTV</i>	18.364	46.866	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	65.230
• OPA/D15603: <i>JLTV</i>	0.000	0.000	0.000	0.000	0.000	0.000	167.408	299.238	516.722	Continuing	Continuing

**D. Acquisition Strategy**

JLTV is a Joint Services Program with the U.S. Army and Marine Corps as the two main components. The Navy anticipates procuring JLTV vehicles upon successful Low Rate Initial Production (LRIP) testing.

The program will use an evolutionary approach to deliver capabilities in increments based on program priorities. All technologies entering the current EMD phase shall be no less than Technology Readiness Level 6 to achieve Capabilities Development Document (CDD) requirements.

Increment I will produce two Mission Role Variant (MRV) configurations (Combat Tactical Vehicle - CTV & Combat Support Vehicle - CSV) and four mission packages (General Purpose, Heavy Guns Carrier, Close Combat Weapons Carrier, Utility). EMD vendors will fabricate representative mission packages from both MRVs, which the Government will fully test during EMD.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2013 Navy DATE: February 2012

APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>	3209: <i>Joint Light Tactical Vehicle</i>

Through a full and open competition, the program anticipates awarding up to three hybrid fixed price contracts for the EMD phase. Unless future market research identifies a valid non-EMD vendor capable of delivering the required capabilities, there will be a down-select from the EMD contractors to enter into the Production and Deployment phase. The down-select will result in a fixed price type contract with a base LRIP quantity, LRIP options, full rate production options, and a Technical Data Package option.

Follow-on increment II will focus on vehicles requiring more internal volume and payload carrying capacity (e.g., ambulances) or those that include higher risk because of geometric and low curb weight requirements (e.g., CH-47F internally transportable vehicles).

**E. Performance Metrics**

Milestone Reviews

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Primary Hardware Development-EMD	C/FP	TBD:Various	-	-		24.575	Nov 2012	-		24.575	Continuing	Continuing	Continuing
Systems Engineering- Human Systems Integration	WR	NSWC:Dahlgren	-	-		0.450	Jan 2013	-		0.450	Continuing	Continuing	Continuing
Systems Engineering- Force Protection	WR	NSWC:Carderock	-	-		0.150	Jan 2013	-		0.150	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		25.175		-		25.175			

<b>Support (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Integrated Logistics Support	Various	Various:Various	-	-		0.588	Dec 2012	-		0.588	Continuing	Continuing	Continuing
SPAWAR GFE Mgmt.	MIPR	Spawar:Charleston, SC	-	-		0.300	May 2013	-		0.300	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		0.888		-		0.888			

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental, Test & Evaluation (Performance, RAM, Ballistic, Report Generation)	MIPR	Govt Proving Grounds:Various	-	-		12.873	Dec 2012	-		12.873	Continuing	Continuing	Continuing
Developmental, Test & Evaluation ( Interoperability )	MIPR	JITC:Various	-	-		0.315	Nov 2012	-		0.315	Continuing	Continuing	Continuing
Developmental, Test & Evaluation ( Oversight )	WR	MCOTEA:Various	-	-		0.600	Nov 2012	-		0.600	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		13.788		-		13.788			

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	BAH:McLean, Va	-	-		2.474	Jan 2013	-		2.474	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	Various:Various	-	-		0.726	Jan 2013	-		0.726	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	MITRE:Stafford, Va	-	-		0.723	Jan 2013	-		0.723	Continuing	Continuing	Continuing
Program Management Support - ESOH Support	C/FFP	Eagan McAllister:Lexington Park, MD	-	-		0.500	Mar 2013	-		0.500	0.000	0.500	
Travel	Various	MCSC:Quantico, Va	-	-		0.226	Oct 2012	-		0.226	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	-		4.649		-		4.649			

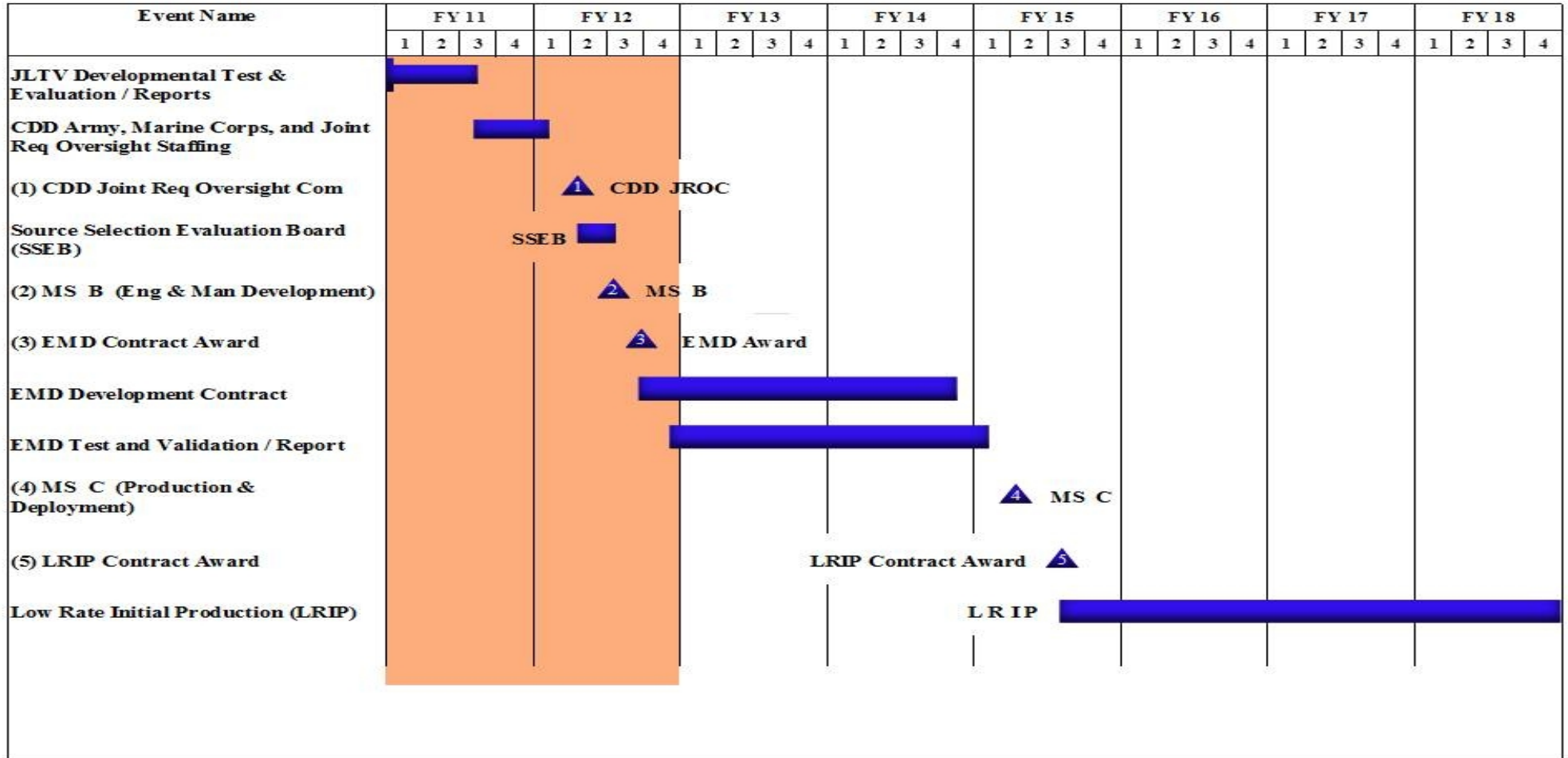
	Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		-	-		44.500	-		44.500			

**Remarks**  
Cost to complete and total cost cannot be provided at this time, until the program proceeds to MS B and an Acquisition Program Baseline is established.

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>
---	---	---



**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0605812M: <i>(U)Joint Light Tactical Vehicle(JLTV) EMD</i>	<b>PROJECT</b> 3209: <i>Joint Light Tactical Vehicle</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 3209</b>				
CDD Army, Marine Corps, and Joint Req Oversight Staffing	3	2011	1	2012
CDD JROC	2	2012	2	2012
Source Selection	2	2012	3	2012
MS B Decision	3	2012	3	2012
EMD Contract(s) Award	3	2012	3	2012
EMD Development Contract	3	2012	4	2014
EMD Government Test Program and Validation Reporting	4	2012	1	2015
MS C Decision	2	2015	2	2015
LRIP Contract Award	3	2015	3	2015



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b>			<b>R-1 ITEM NOMENCLATURE</b>								
1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>			PE 0303354N: <i>ASW Systems Development - MIP</i>								
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	2.150	1.078	13.172	-	13.172	17.986	17.998	14.013	12.083	Continuing	Continuing
0490: <i>Airborne Acoustic Intelligence (AAI)</i>	2.150	1.078	13.172	-	13.172	17.986	17.998	14.013	12.083	Continuing	Continuing

**A. Mission Description and Budget Item Justification**

The mission of Airborne Acoustic Intelligence (AAI) (CNO Project K-0416) is to provide Sound Pressure Level quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in support of the preparation of the Battlespace and Sea Shield/Sea Trial Initiatives. AAI also provides a measurement analysis capability to reconstruct, analyze, and develop active and target strength measurement validation. The AAI data collection program provides passive and active acoustic and non-acoustic data essential for the design and development of environmental models, sensors, weapons, software algorithms, and tactical decision aids. AAI employs developmental and prototypical hardware installed in uniquely configured Anti Submarine Warfare aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. AAI includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics.

Funding was moved in FY11 from PE 0603254N to this PE (0303354N) and is a Military Intelligence Program.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	2.161	1.078	1.177	-	1.177
Current President's Budget	2.150	1.078	13.172	-	13.172
Total Adjustments	-0.011	-	11.995	-	11.995
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	11.994	-	11.994
• Rate/Misc Adjustments	-	-	0.001	-	0.001
• Congressional General Reductions Adjustments	-0.011	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**  
1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
PE 0303354N: *ASW Systems Development - MIP*

**Change Summary Explanation**

Technical: Not Applicable

Schedule: Not Applicable

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy									<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0303354N: <i>ASW Systems Development - MIP</i>				<b>PROJECT</b> 0490: <i>Airborne Acoustic Intelligence (AAI)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
0490: <i>Airborne Acoustic Intelligence (AAI)</i>	2.150	1.078	13.172	-	13.172	17.986	17.998	14.013	12.083	Continuing	Continuing
Quantity of RDT&E Articles	1	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

The mission of Airborne Acoustic Intelligence (AAI) (CNO Project K-0416) is to provide Sound Pressure Level (SPL) quality recordings of targets of interest and an associated new technology, rapid prototyping mechanism for the application of state-of-the-art collection sensors. The program will develop and rapidly deploy new technology concepts in hardware and software to effectively address emerging littoral threats and to improve the present Undersea Warfare capability in support of the preparation of the Battlespace and Sea Shield/Sea Trial Initiatives. AAI also provides a measurement analysis capability to reconstruct, analyze and develop active target strength measurement validation. The AAI data collection program provides passive and active acoustic and non-acoustic data essential for the design and development of environmental models, sensors, weapons, software algorithms, and tactical decision aids. AAI employs developmental and prototypical hardware installed in uniquely configured ASW aircraft to collect data of interest, and specially configured ground support facilities to conduct reconstruction and analysis of this data. AAI includes calibrated recording systems, advanced detection and tracking systems, special sensors, advanced processing systems and techniques and specially derived operational tactics. The one RDT&E article consists of a SPL collection suite.

Funding was moved in FY11 from PE 0603254N to this new PE 0303354N and is considered a Military Intelligence Program.

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

	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<b>Title:</b> Systems Engineering / Aircraft Mods Active Acoustic Program	1.000	0.500	1.412
<b>Articles:</b>	1	0	0
<b>FY 2011 Accomplishments:</b> Engineering to support SPL Recording. Post mission processor upgrades for Calibrated Acoustic Intelligence (ACINT). P-8A aircraft calibration unit enhancements. Engineering development of Target Strength processing placed on Hold.			
<b>FY 2012 Plans:</b> Engineering to support SPL Recording. Post mission processor upgrades for Calibrated ACINT. P-8A aircraft calibration unit enhancements. Engineering development of Target Strength processing placed on Hold.			
<b>FY 2013 Plans:</b> Engineering to support SPL Recording. Post mission processor upgrades for Calibrated ACINT. P-8A aircraft calibration unit enhancements. Engineering support of the Active Target Strength sensor program.			
<b>Title:</b> Data Collection and Analysis	0.750	0.400	0.430
<b>Articles:</b>	0	0	0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303354N: <i>ASW Systems Development - MIP</i>	<b>PROJECT</b> 0490: <i>Airborne Acoustic Intelligence (AAI)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
<p><b><i>FY 2011 Accomplishments:</i></b> Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of Measurement/Measuring and Signature Intelligence (MASINT)/Office of Naval Intelligence (ONI) threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.</p> <p><b><i>FY 2012 Plans:</i></b> Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of MASINT/ONI threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.</p> <p><b><i>FY 2013 Plans:</i></b> Data collection support at Operational Wings. Ongoing collection of high interest acoustic and non-acoustic data in support of MASINT/ONI threat assessment requirements. Reduction, Analysis and Fleet Rapid Feedback. Conduct airborne special operations support. Essential performance modeling and evaluation for advanced technology sensor systems design and Fleet tactics development.</p>				
<p><b><i>Title:</i></b> Active Measurement Validation</p> <p align="right"><b><i>Articles:</i></b></p> <p><b><i>FY 2011 Accomplishments:</i></b> Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes: signal excess measurements, peak frequency, trend analysis and pulse duration measurements) and target strength.</p> <p><b><i>FY 2012 Plans:</i></b> Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes: signal excess measurements, peak frequency, trend analysis and pulse duration measurements) and target strength.</p> <p><b><i>FY 2013 Plans:</i></b> Active Measurement Validation of targets of interest. Provides the acoustic analysis of echo characterization (which includes: signal excess measurements, peak frequency, trend analysis and pulse duration measurements) and target strength.</p>		0.400 0	0.178 0	0.415 0
<p><b><i>Title:</i></b> Product Development</p> <p align="right"><b><i>Articles:</i></b></p> <p><b><i>FY 2013 Plans:</i></b></p>		-	-	10.915 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303354N: <i>ASW Systems Development - MIP</i>	<b>PROJECT</b> 0490: <i>Airborne Acoustic Intelligence (AAI)</i>
---	---	---

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>
Initiate Active Target Strength Sensor development program.			
<b>Accomplishments/Planned Programs Subtotals</b>	2.150	1.078	13.172

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

N/A

**D. Acquisition Strategy**

Airborne Acoustic Intelligence is a CNO Special Project. The included technology developments are primarily in-house with contractor participation through existing vehicles.

**E. Performance Metrics**

MIP Program.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303354N: <i>ASW Systems Development - MIP</i>	<b>PROJECT</b> 0490: <i>Airborne Acoustic Intelligence (AAI)</i>
---	---	---

<b>Product Development (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Active Measurement Validation	WR	NAWCAD:PATUXENT RIVER, MD	0.400	0.178	Oct 2011	0.415	Dec 2012	-		0.415	0.000	0.993		
Ancillary Hdw Development	WR	NAWCAD:PATUXENT RIVER, MD	0.750	0.400	Oct 2011	0.430	Dec 2012	-		0.430	Continuing	Continuing	Continuing	
Systems Eng	WR	NAWCAD:PATUXENT RIVER, MD	0.100	0.036	Oct 2011	0.912	Dec 2012	-		0.912	Continuing	Continuing	Continuing	
Primary Hdw Development	TBD	TBD:TBD	-	-		10.915	Dec 2012	-		10.915	Continuing	Continuing	Continuing	
<b>Subtotal</b>			1.250	0.614		12.672		-		12.672				

<b>Management Services (\$ in Millions)</b>				<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>				
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	
Mgt & Prof Spt Svcs (Non-FFRDC)	Various	VARIOUS:VARIOUS	0.900	0.464	Dec 2011	0.500	Dec 2012	-		0.500	Continuing	Continuing	Continuing	
<b>Subtotal</b>			0.900	0.464		0.500		-		0.500				

	<b>Total Prior Years Cost</b>	<b>FY 2012</b>		<b>FY 2013 Base</b>		<b>FY 2013 OCO</b>		<b>FY 2013 Total</b>		<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>		2.150	1.078		13.172		-		13.172			

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303354N: <i>ASW Systems Development - MIP</i>	<b>PROJECT</b> 0490: <i>Airborne Acoustic Intelligence (AAI)</i>
---	---	---

Proj: 0490 Airborne Acoustic Intelligence (AAI)	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Systems Engineering</b>	P-3/P-8 Avionics Suite																											
<b>Sys Eng Tactical Acoustic Processor (TAPS)</b>	TAPS																											
<b>Product Development</b>	Data Collection and Analysis																											
	Active Target Strength sensor processing development																											
<b>Test &amp; Evaluation</b>	Integrated Testing																											
<b>Deliveries</b>	TAPS Processor								P3/P8 Avionics																			

2013PB - 0303354N - 0490

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303354N: <i>ASW Systems Development - MIP</i>	<b>PROJECT</b> 0490: <i>Airborne Acoustic Intelligence (AAI)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj: 0490 Airborne Acoustic Intelligence (AAI)</b>				
Systems Engineering: P-3/P-8 Avionics Suite: P-3/P-8 Avionics Suite	1	2011	4	2017
Sys Eng Tactical Acoustic Processor (TAPS): Sys Eng Tactical Acoustic Processor (TAPS)	1	2011	4	2017
Product Development: Data Collection and Analysis	1	2011	4	2017
Product Development: Active Target Strength sensor processing development	1	2013	4	2017
Test & Evaluation: Technical Evaluation	1	2015	4	2017
Deliveries: TAPS Processor	3	2011	3	2011
Deliveries: P3/P8 Avionics	3	2013	3	2013



**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303562N: <i>Submarine Tactical Warfare Systems - MIP</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	4.231	-	-	-	-	-	-	-	-	0.000	4.231
0770: <i>Adv Sub Supp Equip Prog</i>	4.231	-	-	-	-	-	-	-	-	0.000	4.231

**A. Mission Description and Budget Item Justification**

The Submarine Tactical Warfare Systems MIP program element is comprised of the Advanced Submarine Support Equipment Program (ASSEP). The objective is to improve submarine operational effectiveness through the development and implementation of advanced Research and Development (R&D). In order to provide improved operational effectiveness, research and development, efforts are focused on Advanced Imaging Developments and Advanced Electronic Warfare Support (ES) Developments. A continuing need exists to improve these capabilities in view of the advancements in potential imaging counter detection, the need to support specialized missions and the increasingly dense and sophisticated electronic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Ongoing developments in 360 degree imaging systems technologies are supporting these needs.

<b><u>B. Program Change Summary (\$ in Millions)</u></b>	<b><u>FY 2011</u></b>	<b><u>FY 2012</u></b>	<b><u>FY 2013 Base</u></b>	<b><u>FY 2013 OCO</u></b>	<b><u>FY 2013 Total</u></b>
Previous President's Budget	4.253	-	-	-	-
Current President's Budget	4.231	-	-	-	-
Total Adjustments	-0.022	-	-	-	-
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Congressional General Reductions	-0.022	-			
Adjustments					

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303562N: <i>Submarine Tactical Warfare Systems - MIP</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
0770: <i>Adv Sub Supp Equip Prog</i>	4.231	-	-	-	-	-	-	-	-	0.000	4.231
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

**A. Mission Description and Budget Item Justification**

A continuing need exists to improve Imaging and Electronic Warfare Support (ES) capabilities in view of the advancements in potential imaging counter detection and the increasingly dense electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Improvements are necessary for submarine ES and imaging to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare, Intelligence Collection, Maritime Protection and Joint Strike. The program is divided into two project categories: Advanced Imaging Project Development and Advanced Electronic Warfare Support Project Development. Both of these categories will allow for the evaluation of the vulnerability of submarine masts, periscopes and sensors to visual, radar, and infrared detection and evaluation of state of the art technology to implement periscope/mast engineering improvements to reduce counter detection threats, the pursuit of technologies (such as 360 degree imaging systems) to develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies available from academia and other sources. Engineering demonstration models (EDMs) are developed, evaluated, and validated in the lab and through at-sea testing.

The Advanced Imaging Project Development Projects include the development of: 360 Degree Imaging - Far Term Advanced System, 360 Degree Imaging 360 Degree JPL, 360 Degree Affordable Modular Panoramic Periscope (AMPP) - Near Term System, 360 Degree Submarine Panoramic Infra-Red (SPIR) Imaging System, Advanced Head Window Water Shedding, Electro-Optic/Infrared Vulnerability Signature Reduction and Mast Signature Reduction. The Advanced Electronic Warfare Support (ES) Development Projects include the development of: Distant ES Support and Remote Log-In, Rapid Reprogram Threat Library, Specific Emitter Identification (SEI) Improvements, ES Vulnerability Tool, Enhanced DeInterleavers, ES Server, LPI DF and ES OBT.

All programs funded in this project are non-acquisition category programs. The test articles identified consist of critical components that will be fully developed during engineering development into Engineering Development Models (EDMs).

ASSEP Program was transferred from a Military Intelligence Program, Program Element (PE) 0303562N in Fiscal Year 2012 back to PE 0603562N.

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

	FY 2011	FY 2012	FY 2013
<b>Title:</b> Advanced Imaging Project Development	2.723	-	-
<b>Articles:</b>	0		
<b>FY 2011 Accomplishments:</b>			
360 Degree Imaging (JPL) - Far Term Advanced System: Conducted Spiral 1 Testing			
360 Degree Submarine Panoramic Mid-wave Infra-Red (MWIR) Imaging System; Generated Performance Specification			
360 Degree Affordable Modular Panoramic Periscope (AMPP) - Generated Performance Specifications			

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy	<b>DATE:</b> February 2012
--	----------------------------

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303562N: <i>Submarine Tactical Warfare Systems - MIP</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2011	FY 2012	FY 2013
Advanced Head Window Water Shedding - Performed At Sea Test and BIO-Fouling Report Mast Signature Reduction - Performed Thermal Studies Low Cost, Multi-Spectral, Grade A, Head Window Spinel: Lab EQT Test			
<b>Title:</b> Advanced Electronic Warfare Support (ES) Project Development.  <b>FY 2011 Accomplishments:</b> Technical Insertions (TI) Distant ES Support and Remote Log-In - Development In-Process Rapid Reprogram of Threat Libraries - Development In-Process ES Vulnerability Tool - Development In-Process	<b>Articles:</b> 1.508 0	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	4.231	-	-

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

N/A

**D. Acquisition Strategy**

This project optimizes technology insertion using a build-test-build approach to support ES and imaging operational needs. Operational needs have been based on the tactical requirements identified in CNO letters, Serial N77/3U629212, dated 04 Sep 03, CNO Itr Ser N772/5U936037 dtd 13 JUN 2005, CNO Itr Ser N776/4U786103 dtd 1 APR 2004, COMSUBLANT/ COMSUBPAC, Virginia Class SSN Operational Requirements Documentation objectives, ORD for Photonics (ORD #365-87-94) [dtd JUL 1994], Operational Requirements Document (ORD) for ES (ORD # 570-77-00) [dtd 20 DEC 2000], ORD for ISIS (ORD #663-77-05) [dtd MAR 2005] Capability Development Document (CDD) for Submarine EW Systems [VER - DRAFT] and CDD for Submarine Imaging Systems [VER OCT 2009 DRAFT]. Project efforts develop submarine unique improvements to mast, periscope, and ES electromagnetic and electro-optic sensors based on emerging technologies that are available from and other sources. Engineering Demonstration Models (EDMs) will be developed to provide a realistic method of evaluating the improvements, including deployment on submarines for testing.

**E. Performance Metrics**

The RDD program goal is to respond to urgent operational needs within 30 days and provide for rapid development and fielding of prototype solutions within 270 days.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303562N: <i>Submarine Tactical Warfare Systems - MIP</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

<b>Product Development (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/FFP	JHU/ARL:Laural, MD	0.338	-		-		-		-	0.000	0.338	
Primary Hardware Development	C/CPFF	3 Phoenix:Fairfax, VA	0.451	-		-		-		-	0.000	0.451	
Primary Hardware Development	SS/CPIF	JPL:Pasadena, CA	0.318	-		-		-		-	0.000	0.318	Continuing
Systems Engineering	WR	NUWC:Newport, RI	2.850	-		-		-		-	0.000	2.850	Continuing
<b>Subtotal</b>			3.957	-		-		-		-	0.000	3.957	

<b>Support (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Technical Services	C/CPAF	AT&T GSI:Vienna, VA	0.240	-		-		-		-	0.000	0.240	Continuing
<b>Subtotal</b>			0.240	-		-		-		-	0.000	0.240	

<b>Management Services (\$ in Millions)</b>				FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	NAVSEA:WNY	0.034	-		-		-		-	0.000	0.034	Continuing
<b>Subtotal</b>			0.034	-		-		-		-	0.000	0.034	

			Total Prior Years Cost	FY 2012		FY 2013 Base		FY 2013 OCO		FY 2013 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>			4.231	-		-		-		-	0.000	4.231	

**Remarks**

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303562N: <i>Submarine Tactical Warfare Systems - MIP</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>
---	--	--

Proj 0770	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
ASSEP Imaging Advanced Development																												
360 Degree Imaging (ONR 360 MWIR) [Mid Term]	▲ Perf Spec		▲ Lab Demo		Transition to PE 0603562N																							
360 Degree Imaging (JPL Version) [Long Term]		▲ Lab Demo Spiral 1																										
360 Degree Imaging (ONR AMPP) [Long Term]			▲ Perf Spec		Transition to PE 0603562N																							
Head Window Water Shedding		▲ At-Sea Testing			Transition to PE 0603562N																							
Low Cost, Multi-Spectral, Grade A, Head Window (Spinel)			▲ EQT Testing																									
Electro-Optic/Infrared Vulnerability Signature Reduction			▲ Special Wake Model Special		Transition to PE 0603562N																							
Electronic Warfare Advanced Development																												
Technical Insert (TIs) (Distant Supt/Remote Login, 2-Rapid Reprog of Threat Lib, 3-ES Vul Tool/Tact Dec Aid,4-Integrated ES/ECS RFDU, 5-Specific Emitter Ident Improvements,6-MMM Payload, 7-LP DF)			▲ Technical Insertions (CI) - (Development 1 - Remote Log-In)	▲ Technical Insertions (CI) - (Development 2 - Rapid Reprogramming Threat Library)																								
				▲ Technical Insertions (TI) Development 3 - ES Vulnerability Tool	Transition																							

2013OSD - 0303562N - 0770

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0303562N: <i>Submarine Tactical Warfare Systems - MIP</i>	<b>PROJECT</b> 0770: <i>Adv Sub Supp Equip Prog</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Proj 0770</b>				
ONR 360 MWIR Mid Term: Perf Spec	1	2011	1	2011
ONR 360 MWIR Mid Term: Lab Demo	3	2011	3	2011
ONR 360 MWIR Mid Term: Transition to PE 0603562N	1	2012	4	2012
JPL Version Long Term: High Resolution Spiral 1 Lab Demo	2	2011	2	2011
ONR AMPP Long Term: Perf Spec	3	2011	3	2011
ONR AMPP Long Term: Transition to PE 0603562N	1	2012	4	2015
Head Window Water Shedding: At-Sea Testing	2	2011	2	2011
Head Window Water Shedding: Transition to PE 0603562N	1	2012	4	2012
Low Cost, Multi-Spectral, Grade A, Head Window Spinel: Lab EQT Test	3	2011	3	2011
Electro-Optic/Infrared Vulnerability Signature Reduction: Special Wake Model Special	3	2011	3	2011
Electro-Optic/Infrared Vulnerability Signature Reduction: Transition to PE 0603562N	1	2012	4	2014
Technical Insert (TIs): Dev 1 - Remote Log-In	3	2011	3	2011
Technical Insert (TIs): Dev 2 - Rapid Reprogramming Threat Library	4	2011	4	2011
Technical Insert (TIs): Dev 3 - ES Vulnerability Tool	4	2011	4	2011
Technical Insert (TIs): Transition to PE 0603562N	1	2012	4	2017

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Navy** **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0304270N: <i>Electronic Warfare Development - MIP</i>
---	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	0.641	0.625	0.643	-	0.643	0.658	0.666	0.677	0.690	Continuing	Continuing
2260: <i>Specific Emitter ID</i>	0.641	0.625	0.643	-	0.643	0.658	0.666	0.677	0.690	Continuing	Continuing

**Note**

New MIP PE formerly funded in 0604270N.

**A. Mission Description and Budget Item Justification**

The efforts described in this Program Element (PE) are based on investment directions as defined in the Naval S&T Strategic Plan approved by the S&T Corporate Board (Sep 2011).

This project supports systems development and collection of Specific Emitter Identification (SEI) information from National Technical Means (NTM) to track commercial ships over 200 gross registered tons world-wide. Research and development will cover improvements and enhancements to Electronic Intelligence technology. This will include improved/next generation SEI technology for miniaturization and automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals. Propagation in a multi-path signal environment will also be assessed. All work on this project will be undertaken in pursuit of goals stated by the Office of Naval Intelligence and the National Security Agency in support of the Worldwide Ship Tracking Program.

This effort was previously funded in PE 0604270N and is moved to this new PE 0304270N for FY11 onward. This PE is a Military Intelligence Program.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013 Base</b>	<b>FY 2013 OCO</b>	<b>FY 2013 Total</b>
Previous President's Budget	0.663	0.625	0.645	-	0.645
Current President's Budget	0.641	0.625	0.643	-	0.643
Total Adjustments	-0.022	-	-0.002	-	-0.002
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.019	-			
• Program Adjustments	-	-	-0.002	-	-0.002
• Congressional General Reductions Adjustments	-0.003	-	-	-	-

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2013 Navy **DATE:** February 2012

**APPROPRIATION/BUDGET ACTIVITY**  
1319: *Research, Development, Test & Evaluation, Navy*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
PE 0304270N: *Electronic Warfare Development - MIP*

**Change Summary Explanation**

Technical: Not applicable.

Schedule: Not applicable.



**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2013 Navy **DATE:** February 2012

<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0304270N: <i>Electronic Warfare Development</i> - <i>MIP</i>	<b>PROJECT</b> 2260: <i>Specific Emitter ID</i>
---	--	--

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
2260: <i>Specific Emitter ID</i>	0.641	0.625	0.643	-	0.643	0.658	0.666	0.677	0.690	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 supports systems development and collection of Specific Emitter Identification (SEI) information from National Technical Means (NTM) to track commercial ships over 200 gross registered tons world-wide. Research and development will cover improvements and enhancements to Electronic Intelligence technology. This will include improved/next generation SEI technology for miniaturization and automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals. Propagation in a multi-path signal environment will also be assessed. All work on this project will be undertaken in pursuit of goals stated by the Office of Naval Intelligence and the National Security Agency in support of the Worldwide Ship Tracking Program.

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

	FY 2011	FY 2012	FY 2013
<p><b>Title:</b> SENSOR FUSION</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> This effort supports systems development and information fusion of improved SEI technology for automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals.</p> <p><b>FY 2011 Accomplishments:</b> (Transistioned from PE 0604270N/Specific Emitter ID) - Continued task to fuse additional sources of data with SEI data for automation of hardware, national collection systems, signal processing and analysis, and de-interleaving of signals. Work toward increasing sensor fusion, collection and reporting automation helped reduce staffing and support remote access and control capability.</p> <p><b>FY 2012 Plans:</b> - Continue all efforts of FY 2011.</p> <p><b>FY 2013 Plans:</b> - Continue all efforts of FY 2012.</p>	0.192 0	0.189 0	0.200 0
<p><b>Title:</b> SYSTEM AUTOMATION</p> <p style="text-align: right;"><b>Articles:</b></p> <p><b>Description:</b> This effort supports development of an autonomous surveillance system capable of providing emitter signal information to a central location.</p> <p><b>FY 2011 Accomplishments:</b></p>	0.226 0	0.219 0	0.220 0

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>		<b>R-1 ITEM NOMENCLATURE</b> PE 0304270N: <i>Electronic Warfare Development</i> - MIP		<b>PROJECT</b> 2260: <i>Specific Emitter ID</i>
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>				
(Transitioned from PE 0604270N/Specific Emitter ID) - Continued task to develop an unmanned, autonomous, remote collection and surveillance system. - Continued task to automate fusion of other sensor information with SEI data collection.  <b>FY 2012 Plans:</b> - Continue all efforts of FY 2011.  <b>FY 2013 Plans:</b> - Continue all efforts of FY 2012.				
<b>Title:</b> TECHNOLOGY REFRESH & COMMUNICATION ENHANCEMENT				
<b>Description:</b> This effort improves SEI system performance, real-time communication and tactical use of SEI which will be expanded with next generation SEI technology.				
<b>FY 2011 Accomplishments:</b> (Transitioned from PE 0604270N/Specific Emitter ID) - Continued task to incorporate other SEI algorithms into deployed processing software. - Continued task on integrating advanced SEI hardware with WINSEI software to support improved SEI system performance and capabilities for tactical and technical use, and which can be expanded with next generation SEI algorithms. - Continued task to incorporate further message reporting formats for dissemination of SEI data and improve SEI interoperability. - Continued task to expand collection capability to support additional radar types.  <b>FY 2012 Plans:</b> - Continue all efforts of FY 2011.  <b>FY 2013 Plans:</b> - Continue all efforts of FY 2012				
				<b>Articles:</b>
				0.223 0
				0.217 0
				0.223 0
<b>Accomplishments/Planned Programs Subtotals</b>				0.641 0.625 0.643
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>D. Acquisition Strategy</b> Not applicable.				

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2013 Navy		<b>DATE:</b> February 2012
<b>APPROPRIATION/BUDGET ACTIVITY</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0304270N: <i>Electronic Warfare Development</i> - <i>MIP</i>	<b>PROJECT</b> 2260: <i>Specific Emitter ID</i>

**E. Performance Metrics**

MIP Program.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED