Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0604402N *I Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	1,237.637	128.135	20.961	35.949	-	35.949	-	-	-	-	-	1,422.682
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	1,237.637	128.135	20.961	35.949	-	35.949	-	-	-	-	-	1,422.682
MDAP/MAIS Code: P388												

The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

The 2005 Quadrennial Defense Review published February 2006 and OSD Advanced Technology & Logistics Executive Committee Memorandum of February 2006 supported direction to restructure the Joint Unmanned Combat Air System (UCAS) program into a new Navy UCAS program. The Navy UCAS program will develop an unmanned, longer-range, carrier-based aircraft capable of being air-refueled to provide greater standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The Navy was directed to demonstrate carrier operations, including Autonomous Aerial Refueling, of a Low Observable (LO) planform UCAS and to mature required technologies to a Technology Readiness Level-6; which, is required for a potential follow on acquisition program.

The Navy UCAS designed for autonomous launch and recovery as well as operations in the Carrier Control Area, is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, LO planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as Primary Flight Control displays, Landing Safety Officer displays, and Carrier Air Traffic Control Center stations.

The Navy UCAS program will be structured to match program resources to United States Navy objectives and constraints with the goals of identifying and maturing critical technologies and reducing the risk of carrier integration of a UCAS. Candidate Technology Maturation efforts include transformational communications, advanced integrated propulsion, aircraft carrier suitable materials, LO sensors and apertures, sense and avoid functionality (in an LO environment), autonomous operations (software algorithms and interfaces), and computer resource data storage and access systems. Modeling, simulation, analysis, industrial capability assessments, system/component development, and analysis of architectures and concept designs are being developed as a result of the demonstration. Maturation of candidate technologies support the evaluation of alternatives needed for a future milestone decision.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy					Date: March 2014
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0604402N *I Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*		
B. Program Change Summary ($ in Millions)	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO**	**FY 2015 Total**
Previous President's Budget	142.282	20.961	-	-	-
Current President's Budget	128.135	20.961	35.949	-	35.949
Total Adjustments	-14.147	-	35.949	-	35.949
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.068	-			
• Rate/Misc Adjustments	-0.001	-	35.949	-	35.949
• Congressional General Reductions Adjustments	-11.078	-	-	-	-

Change Summary Explanation

Technical: FY14 program plan reflects Chief of Naval Operations and Secretary of Navy direction to continue the program to include additional test and at-sea periods. FY15 funding continues demonstration and integration efforts as directed by Chief of Naval Operations and Secretary of Navy.

Schedule:
Systems Development-
Ship Integration and Installations (Build 2) from 4th QTR 2013 to 3rd QTR 2015
Autonomous Aerial Refueling (AAR) System Integration Installation from 2nd QTR 2014 to 3rd QTR 2015
Surrogate/Air Vehicle Flight Test from 3rd QTR 2013 to 4th QTR 2015

Test & Evaluation-
Surrogate Testing from 4th QTR 2013 to 2nd QTR 2015
Land Based Carrier Control Area Testing from 4th QTR 2013 to 4th QTR 2015

Sea Trials-
From 1st QTR 2014 to 3rd QTR 2015
Added CV Demonstration 1st QTR 2014 , CVN Integration Ops 4th QTR 2014 and CVW Integration Ops 2nd QTR 2015

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy												Date: March 2014
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*				Project (Number/Name) 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*			
COST ($ in Millions)	**Prior Years**	**FY 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
3178: *Unmanned Combat Air System CV-Demo (UCAS-D)*	1,237.637	128.135	20.961	35.949	-	35.949	-	-	-	-	-	1,422.682
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

FY14 program plan reflects Chief of Naval Operations and Secretary of Navy direction to continue the program to include additional test and at-sea periods. FY15 funding continues demonstration and integration efforts as directed by Chief of Naval Operations and Secretary of Navy.

A. Mission Description and Budget Item Justification

The Navy Unmanned Combat Air System (UCAS), designed for autonomous launch and recovery as well as operations in the Carrier Control Area, is comprised of an Air Vehicle Segment, a Mission Control Segment (MCS) and a government led Aircraft Carrier Integration Segment. The scope of the Navy UCAS effort includes design, development, integration, and validation of an unmanned, Low Observable (LO) planform Air Vehicle Segment and MCS in the land-based and shipboard environments. Evaluations will be conducted to investigate MCS interfaces with shipboard systems such as Primary Flight Control displays, Landing Safety Officer (LSO) displays, and Carrier Air Traffic Control Center (CATCC) stations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Product Development	100.196	14.644	27.801
Articles:	-	-	-
Description: The primary effort in the Navy UCAS program is design, development, integration and validation of Air Vehicle Segment, MCS and government led Aircraft Carrier Segment leading to a Carrier demonstration of an unmanned, LO planform UCAS system, and development of internal/external interface documents. In addition, design and development of hardware/ software to support Autonomous Aerial Refueling (AAR) will be conducted. Shipboard evaluation of the Navy UCAS includes integration of the Navy UCAS with shipboard systems such as Primary Flight Control displays, LSO displays and CATCC stations.			
FY 2013 Accomplishments: Continued efforts in the Navy UCAS program designing, developing, integrating and validating the Navy UCAS Air Vehicle Segment, Mission Control Segment and government led Aircraft Carrier Integration Segment. Finalized temporary installations of UCAS-D shipboard components on Nimitz class aircraft carrier. Continued AAR integration efforts.			
FY 2014 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Continue AAR integration efforts. Continue Navy UCAS demonstration activities to include additional test and at-sea period. ***FY 2015 Plans:*** Continue demonstration and integration efforts as directed by Chief of Naval Operations and Secretary of the Navy.			
Title: Test and Evaluation Support	18.759	3.646	7.798
Articles:	-	-	-
FY 2013 Accomplishments: Continued shore-based carrier suitability testing with Air Vehicles 1 and 2 at NAWCAD Patuxent River, MD. Conducted Sea Trial testing, including ship landings, for Air Vehicles 1 and 2 aboard a Nimitz class aircraft carrier. ***FY 2014 Plans:*** Continue Navy UCAS demonstration activities to include additional test and at-sea period. ***FY 2015 Plans:*** Continue UCAS Demonstration objectives as directed by Chief of Naval Operations and Secretary of the Navy.			
Title: Management	9.180	2.671	0.350
Articles:	-	-	-
FY 2013 Accomplishments: Government management, engineering, and contract support. ***FY 2014 Plans:*** Government management, engineering, and logistics support. ***FY 2015 Plans:*** Government management, engineering, and logistics support.			
Accomplishments/Planned Programs Subtotals	128.135	20.961	35.949

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

In the 2005 Quadrennial Defense Review, the Navy was directed to restructure the Joint Unmanned Combat Air System (UCAS) program and develop an unmanned, longer-range carrier-based aircraft capable of being air-refueled to provide greater aircraft carrier standoff capability, to expand payload and launch options, and to increase naval reach and persistence. The primary goal is risk reduction for carrier integration while developing the critical data necessary to support a potential follow

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

on acquisition milestone decision. The Navy UCAS effort will focus on designing, developing, and evaluating the core capabilities which safely demonstrate carrier interoperability. Currently, primary hardware development for the Navy UCAS effort is being performed under a Federal Acquisition Regulation based, cost plus incentive fee-type contract competitively awarded to a single contractor.

E. Performance Metrics

Complete airworthiness and envelope expansion testing. Conduct shore-based carrier suitability testing. Conduct F/A-18D surrogate aircraft testing with Nimitz class aircraft carrier. Conduct at sea flight test of X-47B air vehicles. Demonstrate Autonomous Aerial Refueling via Surrogate Aircraft.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy			Date: March 2014
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aviation/ Ship Integration	C/CPFF	Rockwell/AFRL : Rome, NY	10.301	0.827	Nov 2012	0.820	Nov 2013	0.585	Nov 2014	-		0.585	-	12.533	12.533
Aviation/ Ship Integration	C/CPFF	L-3 Com Titan : MD	12.135	-		-		-		-		-	-	12.135	12.135
Aviation/Ship Integration	WR	NAWCAD : MD	67.544	32.880	Nov 2012	10.359	Nov 2013	6.720	Nov 2014	-		6.720	-	117.503	-
Aviation/Ship Integration	C/CPIF	Various : Various	5.142	0.843	Jan 2013	0.100	Jan 2014	-		-		-	-	6.085	6.085
Primary Hardware Development	C/CPIF	Northrop Grumman Corporation : CA	846.315	52.473	Dec 2012	-		-		-		-	-	898.788	898.788
Air Vehicle Integration	C/CPIF	Northrop Grumman Corporation : CA	0.000	-		1.000	Apr 2014	16.949	Dec 2014	-		16.949	-	17.949	17.949
Systems Engineering	WR	NAWCAD : MD	54.584	8.366	Nov 2012	1.841	Nov 2013	3.147	Nov 2014	-		3.147	-	67.938	-
Product Development	Various	Various : Various	112.096	4.807	Dec 2012	0.524	Dec 2013	0.400	Dec 2014	-		0.400	-	117.827	-
New Highly Integrated Photonics	Various	Various : Various	10.184	-		-		-		-		-	-	10.184	10.184
		Subtotal	1,118.301	100.196		14.644		27.801		-		27.801	-	1,260.942	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	20.861	-		-		-		-		-	-	20.861	-
		Subtotal	20.861	-		-		-		-		-	-	20.861	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	Edwards AFB : CA	10.197	0.100	Nov 2012	-		-		-		-	-	10.297	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : MD	25.345	18.559	Nov 2012	3.546	Nov 2013	7.798	Nov 2014	-		7.798	-	55.248	-
Test & Evaluation	Various	Various : Various	1.374	0.100	Nov 2012	0.100	Nov 2013	-		-		-	-	1.574	-
		Subtotal	36.916	18.759		3.646		7.798		-		7.798	-	67.119	-

Management Services ($ in Millions)

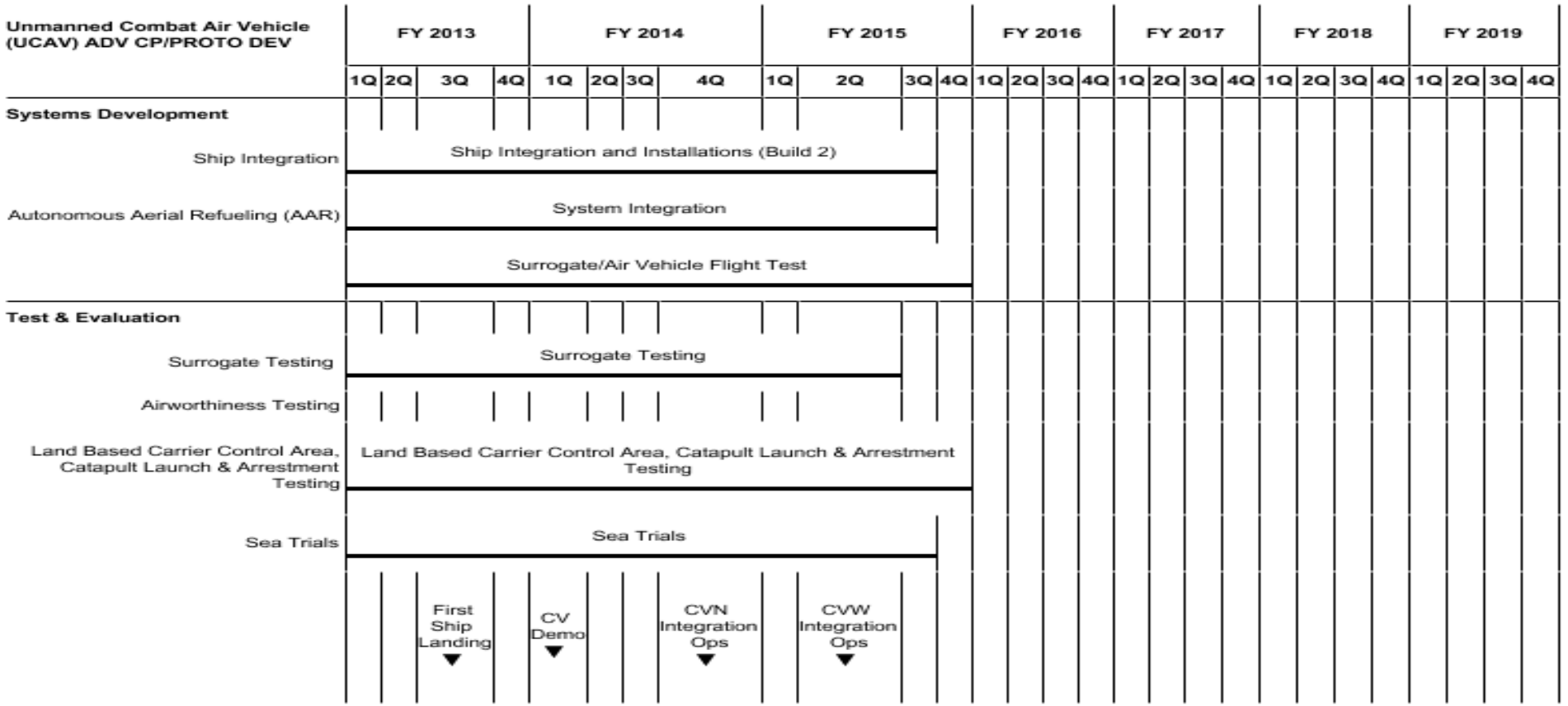
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor SEPM Support	C/CPIF	Various : Various	22.232	2.351	Dec 2012	1.000	Jan 2014	-		-		-	-	25.583	25.583
Government Engineering Support	WR	NAWCAD : MD	20.318	4.846	Nov 2012	1.120	Nov 2013	-		-		-	-	26.284	-
Program Management Support	WR	NAWCAD : MD	16.263	1.983	Nov 2012	0.551	Nov 2013	0.350	Nov 2014	-		0.350	-	19.147	-
Prior Year Mgmt cost no longer funded in the FYDP	Various	Various : Various	2.746	-		-		-		-		-	-	2.746	-
		Subtotal	61.559	9.180		2.671		0.350		-		0.350	-	73.760	-

	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,237.637	128.135		20.961		35.949		-		35.949	-	1,422.682	-

Remarks

FY14 program plan reflects Chief of Naval Operations and Secretary of Navy direction to continue the program to include additional test and at-sea periods. FY15 funding continues demonstration and integration efforts as directed by Chief of Naval Operations and Secretary of Navy.

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*



2015PB - 0604402N - 3178

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604402N / *Unmanned Combat Air Veh(UCAV) Adv Cp/Proto Dev*	**Project (Number/Name)** 3178 / *Unmanned Combat Air System CV-Demo (UCAS-D)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Unmanned Combat Air Vehicle (UCAV) ADV CP/PROTO DEV				
Systems Development: Ship Integration: Build 2	1	2013	3	2015
Systems Development: Autonomous Aerial Refueling (AAR): System Integration - AAR	1	2013	3	2015
Systems Development: Autonomous Aerial Refueling (AAR): Surrogate/Air Vehicle Flight Test - AAR	1	2013	4	2015
Test & Evaluation: Surrogate Testing: Surrogate Testing	1	2013	2	2015
Test & Evaluation: Land Based Carrier Control Area, Catapult Launch & Arrestment Testing: Land Based Carrier Control Area, Catapult Launch & Arrestment Testing	1	2013	4	2015
Test & Evaluation: Sea Trials: Sea Trials	1	2013	3	2015
Test & Evaluation: Sea Trials: First Ship Landing	3	2013	3	2013
Test & Evaluation: Sea Trials: CV Demonstration	1	2014	1	2014
Test & Evaluation: Sea Trials: CVN Integration Ops	4	2014	4	2014
Test & Evaluation: Sea Trials: CVW Integration Ops	2	2015	2	2015