Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	147.922	10.720	8.783	5.591	-	5.591	5.750	5.862	6.146	6.242	Continuing	Continuing
0584: *Acft Protective Clothing*	80.275	6.993	5.049	2.461	-	2.461	2.593	2.633	2.725	2.769	Continuing	Continuing
0591: *Acft Survivability, Vulnerability & Safety*	37.945	1.616	1.616	1.447	-	1.447	1.473	1.521	1.588	1.612	Continuing	Continuing
0592: *Acft & Ordnance Safety*	29.637	1.395	1.401	1.068	-	1.068	1.066	1.079	1.170	1.188	Continuing	Continuing
1819: *CV Acft Fire Suppress System*	0.065	0.716	0.717	0.615	-	0.615	0.618	0.629	0.663	0.673	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	10.893	8.783	6.640	-	6.640
Current President's Budget	10.720	8.783	5.591	-	5.591
Total Adjustments	-0.173	0.000	-1.049	-	-1.049
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.078	0.000			
• SBIR/STTR Transfer	-0.095	0.000			
• Rate/Misc Adjustments	0.000	0.000	-1.049	-	-1.049

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Navy	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*

Change Summary Explanation

Technical: Not applicable.

Schedule: 0584 Advanced Helmet Vision System Laboratory Testing extended to 4th quarter 2014 to allow for integration into the helmet system.

Schedule: 0591 Rotary Wing Prototype Hardware and Rotary Wing Ballistic Testing were extended to 4th quarter 2018 due to deficiencies found as a result of biofuel/self-sealing fuel cell testing in FY12. Additional time is required to ensure mature technology is developed and available from vendors before government testing. Rotary Wing Signature Tests were extended due to identification of new threat type (as a result of the advanced threat line item) and the corresponding development of suitable mature technologies to mitigate the threat effects. Prototype Hardware Tests have been extended to allow for the maturation of suitable polymers to be used as fluid mitigation materials.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0584: *Acft Protective Clothing*	80.275	6.993	5.049	2.461	-	2.461	2.593	2.633	2.725	2.769	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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 2012	FY 2013	FY 2014
Title: Advanced Technology Crew Station	5.504	3.982	1.575
Articles:	0	0	0
FY 2012 Accomplishments: 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.			
FY 2013 Plans: 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 (AHVS). Begin integrating smart controllers for crashworthy seating and external airbag deployment into the Joint Multi Role Future Vertical Lift platforms.			
FY 2014 Plans: Continue high resolution and micro display development. Continue lab and ground testing of AHVS. Begin integration of high resolution cameras in AHVS. Explore development of integrated short wave infrared and near infrared cameras.			
Title: Advanced Integrated Life Support System	1.489	1.067	0.886

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Articles:	0	0	0
FY 2012 Accomplishments: 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.			
FY 2013 Plans: 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.			
FY 2014 Plans: Develop test methodology to assess optical performance of multiple stacked optical elements (e.g., spectacle behind visor on Helmet Mounted Display). Begin integrating anthropometric software and models into modeling for design of optimized protective equipment. Continue working with the Army to document and define methodologies to mitigate head/neck injury.			
Accomplishments/Planned Programs Subtotals	6.993	5.049	2.461

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Primary Hardware Development for the Navy Advanced Technology Crew Station efforts will be performed under a Cost Plus Fixed Fee Indefinite Delivery Indefinite Quantity contract.

E. Performance Metrics

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPFF	Gentex:Simpson, PA	7.628	0.704	Jan 2012	1.960	Jan 2013	0.128	Jun 2014	-		0.128	0.000	10.420	10.420
Systems Engineering	WR	NAWCAD:Pax River MD	29.664	1.090	Dec 2011	0.589	Dec 2012	0.373	Dec 2013	-		0.373	Continuing	Continuing	Continuing
Licenses	WR	NAWCAD:Pax River MD	1.085	0.211	Dec 2011	0.211	Dec 2012	0.100	Dec 2013	-		0.100	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPFF	Intevac:San Jose CA	0.000	1.000	May 2012	1.192	Jan 2013	0.560	Jun 2014	-		0.560	0.000	2.752	2.752
Primary Hardware Development	MIPR	US Army CERDEC:Ft. Belvoir VA	0.000	2.500	May 2012	0.000		0.470	Mar 2014	-		0.470	0.000	2.970	2.970
Prior Year Prod Dev no Longer Funded in Budget Year or Outyears	Various	Various:Various	13.900	0.000		0.000		0.000		-		0.000	0.000	13.900	
		Subtotal	52.277	5.505		3.952		1.631		0.000		1.631			

Remarks

FY 2012 execution changes reduced the Gentex contract by $3.5M due to decision to partner with the Army to use their Color Low Light Imaging contract and the promotion of Intevac from Gentex sub contractor to Prime. In FY 2013 the Gentex contract will be reduced by $800K and sent to the Army to continue development of the micro display. The Army contract will continue through FY15.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total 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	Dec 2013	-		0.110	Continuing	Continuing	Continuing
Prior Year Support no Longer Funded in Budget Year or Outyears	Various	Various:Various	3.232	0.000		0.000		0.000		-		0.000	0.000	3.232	
		Subtotal	4.460	0.596		0.110		0.110		0.000		0.110			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total 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	0.387	Dec 2013	-		0.387	Continuing	Continuing	Continuing
Prior Year T&E no Longer Funded in Budget Year or Outyears	Various	Various:Various	18.240	0.000		0.000		0.000		-		0.000	0.000	18.240	
		Subtotal	21.023	0.502		0.545		0.387		0.000		0.387			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Pax River MD	2.120	0.340	Dec 2011	0.392	Dec 2012	0.303	Dec 2013	-		0.303	Continuing	Continuing	Continuing
Travel	PO	NAVAIR:Pax River MD	0.385	0.050	Oct 2011	0.050	Oct 2012	0.030	Oct 2013	-		0.030	Continuing	Continuing	Continuing
Prior Year Mgmt Svcs no Longer Funded in Budget Year or Outyears	Various	Various:Various	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	
		Subtotal	2.515	0.390		0.442		0.333		0.000		0.333			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	80.275	6.993		5.049		2.461		0.000		2.461			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

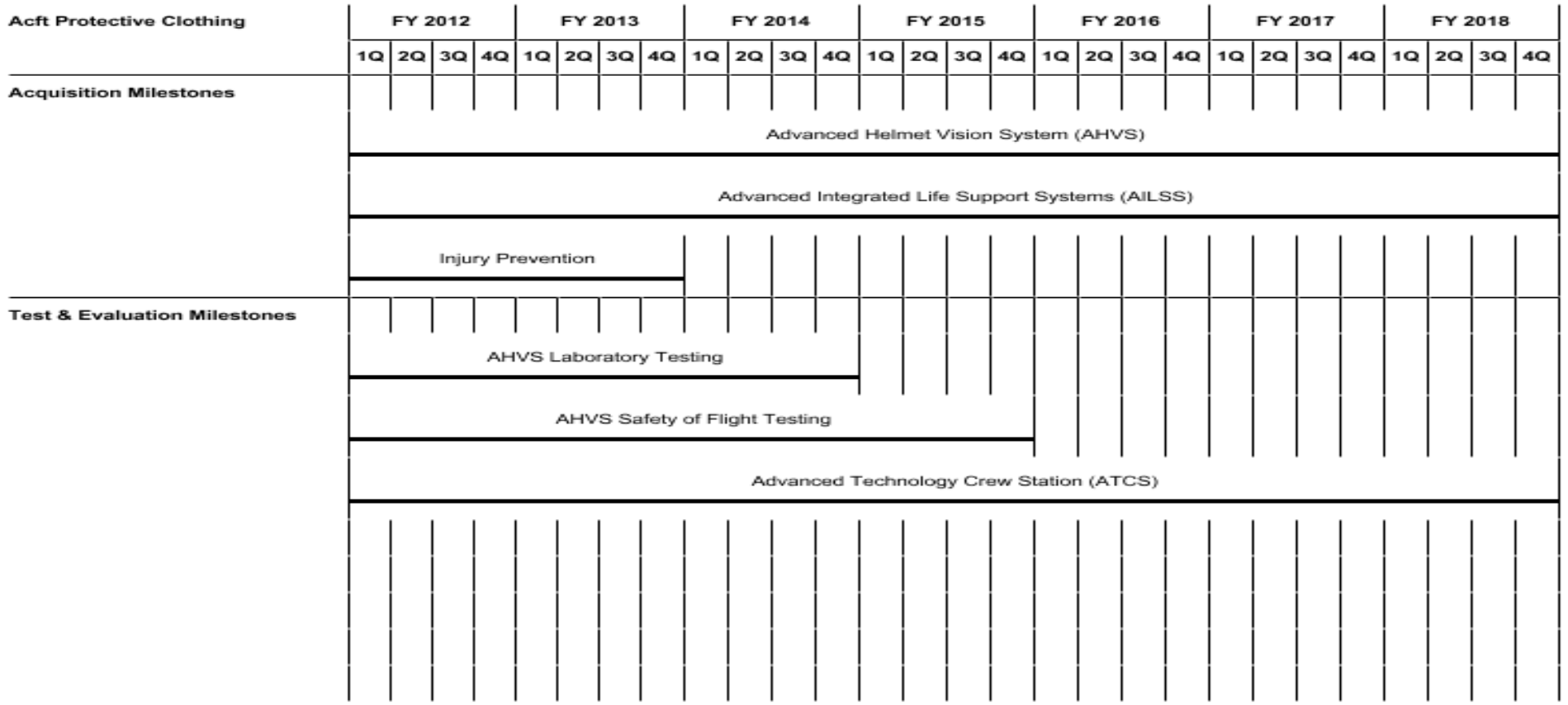

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0584: *Acft Protective Clothing*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Protective Clothing				
Acquisition Milestones: Advanced Helmet Vision System (AHVS)	1	2012	4	2018
Acquisition Milestones: Advanced Integrated Life Support Systems	1	2012	4	2018
Acquisition Milestones: Injury Prevention	1	2012	4	2013
Test & Evaluation Milestones: AHVS Laboratory Testing	1	2012	4	2014
Test & Evaluation Milestones: AHVS Safety of Flight Testing	1	2012	4	2015
Test & Evaluation Milestones: Advanced Technology Crew Station	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0591: *Acft Survivability, Vulnerability & Safety*	37.945	1.616	1.616	1.447	-	1.447	1.473	1.521	1.588	1.612	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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)	FY 2012	FY 2013	FY 2014
Title: Technology Requirements	0.273	0.259	0.215
Articles:	0	0	0
FY 2012 Accomplishments: 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.			
FY 2013 Plans: 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.			
FY 2014 Plans: Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, threat systems analysis, and biofuels impacts to survivability systems.			
Title: Technology Design & Development	0.905	0.956	0.782
Articles:	0	0	0
FY 2012 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
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. ***FY 2013 Plans:*** 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. ***FY 2014 Plans:*** Assess technologies to address acoustic and infrared signature reduction of operational platforms. Assess low gloss paint scheme impacts to signature reduction of aircraft. Assess nuclear, biological, and chemical decontamination materials to enhance crew survivability. Develop polymer applications for self-sealing fuel systems applications that are biofuels-compatible. Assess advancements in lightweight armor technologies for integration onto operational platforms.			
Title: Technology Test & Evaluation	0.438	0.401	0.450
Articles:	0	0	0
FY 2012 Accomplishments: Flight test armored canopy. Perform live fire testing on platform specific gearbox polymer modifications. Perform live fire test on biofuels-compatible fuel bladder. ***FY 2013 Plans:*** 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. ***FY 2014 Plans:*** Perform live fire testing on polymer-coated hardware. Perform live fire testing on lightweight armor coupon samples. Perform biofuels compatibility testing of polymer samples. Perform testing on signature reduction technologies.			
Accomplishments/Planned Programs Subtotals	1.616	1.616	1.447

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

E. Performance Metrics

Evaluate 100% of deployed/developmental United States Navy/United States Marine Corp 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary hardware Development	SS/CPFF	Bell Helicopter:Dallas, TX	0.934	0.150	Mar 2012	0.000		0.000		-		0.000	0.000	1.084	1.084
Primary Hardware Development	WR	NAWCAD:Pax River, MD	10.342	0.296	Oct 2011	0.195	Oct 2012	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD:Pax River, MD	11.239	0.336	Oct 2011	0.653	Oct 2012	0.633	Oct 2013	-		0.633	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD:China Lake, CA	0.000	0.056	Oct 2011	0.108	Oct 2012	0.049	Oct 2013	-		0.049	Continuing	Continuing	Continuing
Technology Design	C/CPFF	TBD:TBD	0.000	0.000		0.000		0.100	Jan 2014	-		0.100	0.000	0.100	0.100
Prior Year Prod Dev cost no longer funded in FYDP	Various	Various:Various	4.770	0.000		0.000		0.000		-		0.000	0.000	4.770	
		Subtotal	27.285	0.838		0.956		0.782		0.000		0.782			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support cost no longer funded in FYDP	Various	Various:Various	4.569	0.000		0.000		0.000		-		0.000	0.000	4.569	
		Subtotal	4.569	0.000		0.000		0.000		0.000		0.000	0.000	4.569	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD:Pax River, MD	2.148	0.156	Oct 2011	0.113	Oct 2012	0.105	Oct 2013	-		0.105	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	MIPR	Army Research Lab:Aberdeen, MD	0.405	0.200	Mar 2012	0.122	Nov 2012	0.050	Nov 2013	-		0.050	Continuing	Continuing	Continuing
Live Fire Test & Evaluation	WR	NAWCWD:China Lake, CA	1.647	0.185	Oct 2011	0.166	Oct 2012	0.154	Oct 2013	-		0.154	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Test & Evaluation	WR	NAWCAD:Pax River, MD	0.000	0.000		0.000		0.141	Oct 2013	-		0.141	Continuing	Continuing	Continuing
Prior Year T&E cost no longer funded in FYDP	Various	Various:Various	0.348	0.000		0.000		0.000		-		0.000	0.000	0.348	
		Subtotal	4.548	0.541		0.401		0.450		0.000		0.450			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD:Pax River, MD	0.879	0.216	Oct 2011	0.239	Oct 2012	0.202	Oct 2013	-		0.202	Continuing	Continuing	Continuing
Travel	PO	NAVAIR:Patuxent River, MD	0.324	0.021	Dec 2011	0.020	Oct 2012	0.013	Oct 2013	-		0.013	Continuing	Continuing	Continuing
Prior Year Mgmt cost no longer funded in FYDP	Various	Various:Various	0.340	0.000		0.000		0.000		-		0.000	0.000	0.340	
		Subtotal	1.543	0.237		0.259		0.215		0.000		0.215			

	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	37.945	1.616		1.616		1.447		0.000		1.447			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0591: *Acft Survivability, Vulnerability & Safety*

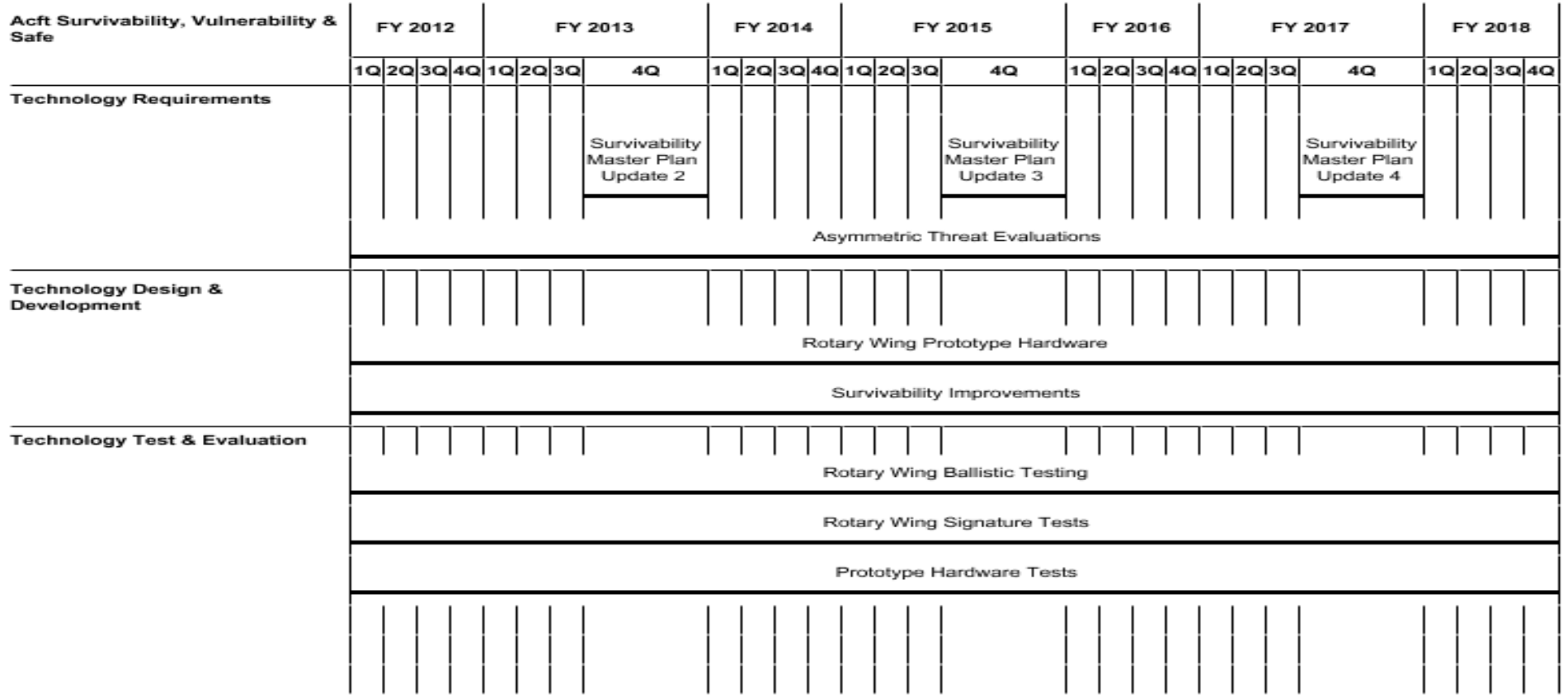

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0591: *Acft Survivability, Vulnerability & Safety*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Survivability, Vulnerability & Safe				
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	2012	4	2018
Technology Design & Development: Rotary Wing Prototype Hardware	1	2012	4	2018
Technology Design & Development: Survivability Improvements	1	2012	4	2018
Technology Test & Evaluation: Rotary Wing Ballistic Testing	1	2012	4	2018
Technology Test & Evaluation: Rotary Wing Signature Tests	1	2012	4	2018
Technology Test & Evaluation: Prototype Hardware Tests	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
0592: *Acft & Ordnance Safety*	29.637	1.395	1.401	1.068	-	1.068	1.066	1.079	1.170	1.188	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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 2012	FY 2013	FY 2014
Title: Insensitive Munitions (IM)	1.395	1.401	1.068
Articles:	0	0	0

FY 2012 Accomplishments:

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.

Improve Air-Launched Weapons: Continue reactive liner evaluation in support of current transition efforts in bombs (Bomb Live Union ((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).

Advanced Containment/Case/Warhead Materials: Continue Tomahawk hybrid case Mk 135 design/demonstration. Initiate IM evaluation of new Mk 135 propellant in composite case.

Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continue Advanced Anti-Radiation Guided Missile (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.

FY 2013 Plans:

Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor evaluation in support of PMA 259 FY14 planned transition. Continue IM technology demonstration for 8-inch metal matrix rocket motor.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
Improve Air-Launched Weapons: Continue IM technical evaluation/demonstration for 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 Insensitive Munitions (IM) Technology Program). 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. Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Finalize Advanced Anti-Radiation Guided Missile (AARGM) container IM 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. ***FY 2014 Plans:*** Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor evaluation in support of PMA 259 FY16 planned transition. Continue IM technology demonstration for metal matrix composite rocket motor IM demonstration. Improve Air-Launched Weapons: Continue IM technical evaluation/demonstration for Bomb Live Unit (BLU) 110 reactive liner technology with performance enhancement (i.e., cast ductile iron, net explosive transitions from Joint Service IM Technology Program (JIMTP)) in support of current PMA 201 plan of action and milestones in the FY13/14 IM Strategic Plan. Continue minimum smoke propellant demonstration for rockets (transition out of JIMTP). Advanced Containment/Case/Warhead Materials: Continue Tomahawk Mk 135 hybrid case design/demonstration with evaluation of baseline propellant and evaluation of new propellant (JIMTP transition) designed to improve slow cook-off and operational performance. Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Finalize evaluation of AARGM container and warhead in tactical configuration to establish IM signature, based on current IM test standards, for PMA 242. Initiate evaluation of material structure and design for shape charge jet mitigation.			
Accomplishments/Planned Programs Subtotals	1.395	1.401	1.068

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

The Aircraft and Ordnance Safety program will initiate six to nine technology development/maturation efforts to improve Insensitive Munitions (IM) 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 IM strategic plan.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCWD:China Lake, CA	29.629	1.395	Nov 2011	1.401	Nov 2012	1.068	Nov 2013	-		1.068	Continuing	Continuing	Continuing
		Subtotal	29.629	1.395		1.401		1.068		0.000		1.068			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce Fund	Various	Various:Various	0.008	0.000		0.000		0.000		-		0.000	0.000	0.008	
		Subtotal	0.008	0.000		0.000		0.000		0.000		0.000	0.000	0.008	

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.637	1.395		1.401		1.068		0.000		1.068			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 0592: *Acft & Ordnance Safety*

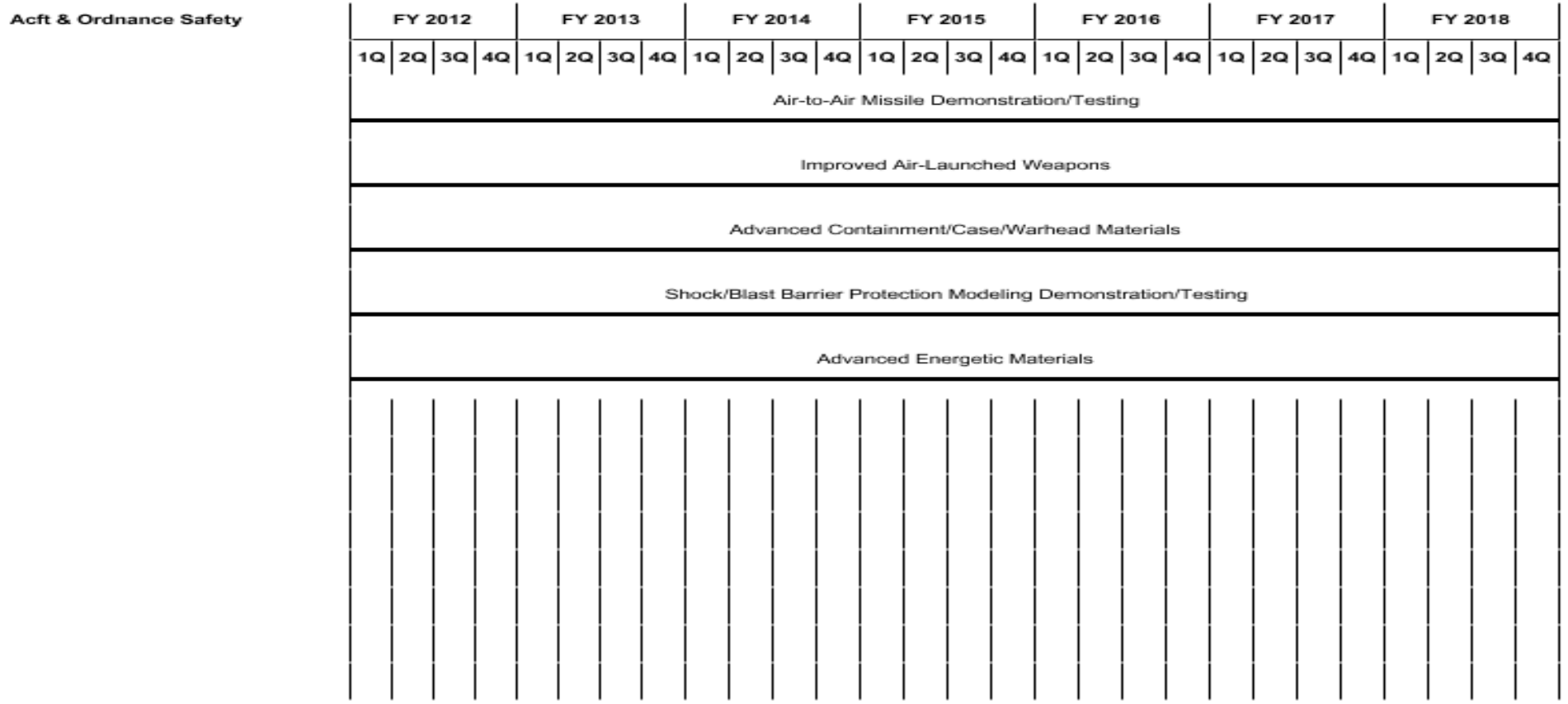

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Exhibit R-4A, RDT&E Schedule Details: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603216N: *Aviation Survivability*	**PROJECT** 0592: *Acft & Ordnance Safety*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft & Ordnance Safety				
Air-to-Air Missile Demonstration/Testing	1	2012	4	2018
Improved Air-Launched Weapons	1	2012	4	2018
Advanced Containment/Case/Warhead Materials	1	2012	4	2018
Shock/Blast Barrier Protection Modeling Demonstration/Testing	1	2012	4	2018
Advanced Energetic Materials	1	2012	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
1819: *CV Acft Fire Suppress System*	0.065	0.716	0.717	0.615	-	0.615	0.618	0.629	0.663	0.673	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0		0	0	0	0	0		

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

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)	FY 2012	FY 2013	FY 2014
Title: Fire-Fighting	0.716	0.717	0.615
Articles:	0	0	0

FY 2012 Accomplishments:

Continue to test hardware for cooling of Joint Strike Fighter (JSF) internally carried ordnance. Continue development of Aqueous Film-Forming Foam (AFFF) application nozzle and procedures for Electromagnetic Aircraft Launch System (EMALS). Finalize procedures for cooling of JSF internally carried ordnance. Provide subject matter expert support to the Aircraft Fire Fighting Naval Air Training and Operating Procedures Standardization (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.

FY 2013 Plans:

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 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.

FY 2014 Plans:

Conclude research to prevent aircraft loss due to Li-ion battery runaway casualty. Conclude development of guidance for crash and fire on large-frame unmanned air vehicle (Navy Unmanned Combat Air System). Conclude development of composite filtering flash hood. Study hazards and develop guidance for hot refuel of helicopters using zodiac bags. Analyze and quantify risk to flight

Exhibit R-2A, RDT&E Project Justification: PB 2014 Navy		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2012	FY 2013	FY 2014
deck firefighters from weapons in mishap scenarios. Perform risk analysis tools survey and capability gap assessment in support of mishap scenario task.			
Accomplishments/Planned Programs Subtotals	0.716	0.717	0.615

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

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 Department of the Navy shipboard aircraft fire-fighting procedures and documentation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Thomas Associates:Stevensville, MD	0.065	0.061	Mar 2012	0.030	Dec 2012	0.050	Dec 2013	-		0.050	0.000	0.206	0.206
		Subtotal	0.065	0.061		0.030		0.050		0.000		0.050	0.000	0.206	0.206

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	C/CPFF	ICI:Virginia Beach, VA	0.000	0.035	Mar 2012	0.040	Apr 2013	0.025	Dec 2013	-		0.025	0.000	0.100	0.100
		Subtotal	0.000	0.035		0.040		0.025		0.000		0.025	0.000	0.100	0.100

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Test & Evaluation	WR	NAWCWD:China Lake, CA	0.000	0.303	Oct 2011	0.308	Oct 2012	0.250	Oct 2013	-		0.250	Continuing	Continuing	Continuing
Technology Test & Evaluation	WR	NSWC:Philadelphia, PA	0.000	0.080	Nov 2011	0.116	Apr 2013	0.052	Oct 2013	-		0.052	Continuing	Continuing	Continuing
Technology Test & Evaluation	C/CPFF	Thomas Associates:Stevensville, MD	0.000	0.044	Mar 2012	0.030	Dec 2012	0.045	Dec 2013	-		0.045	0.000	0.119	0.119
Technology Test & Evaluation	C/FFP	Hughes Associates:Baltimore, MD	0.000	0.135	Mar 2012	0.135	Jan 2013	0.135	Dec 2013	-		0.135	0.000	0.405	0.405
		Subtotal	0.000	0.562		0.589		0.482		0.000		0.482			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2014 Navy			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 1319: *Research, Development, Test & Evaluation, Navy* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603216N: *Aviation Survivability*	PROJECT 1819: *CV Acft Fire Suppress System*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	All Prior Years	FY 2012 Cost	FY 2012 Award Date	FY 2013 Cost	FY 2013 Award Date	FY 2014 Base Cost	FY 2014 Base Award Date	FY 2014 OCO Cost	FY 2014 OCO Award Date	FY 2014 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NAWCWD:China Lake, CA	0.000	0.058	Oct 2011	0.058	Oct 2012	0.058	Oct 2013	-		0.058	Continuing	Continuing	Continuing
		Subtotal	0.000	0.058		0.058		0.058		0.000		0.058			

	All Prior Years	FY 2012		FY 2013		FY 2014 Base		FY 2014 OCO		FY 2014 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.065	0.716		0.717		0.615		0.000		0.615			

Remarks