

**UNCLASSIFIED**

<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2015 Navy	<b>Date:</b> March 2014
---	-------------------------

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>					<b>R-1 Program Element (Number/Name)</b> PE 0603216N / <i>Aviation Survivability</i>							
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015 Base</b>	<b>FY 2015 OCO #</b>	<b>FY 2015 Total</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
Total Program Element	158.642	7.970	5.591	4.325	-	4.325	5.728	5.989	6.035	6.153	Continuing	Continuing
0584: <i>Acft Protective Clothing</i>	87.268	4.545	2.461	1.388	-	1.388	2.605	2.691	2.721	2.774	Continuing	Continuing
0591: <i>Acft Survivability, Vulnerability &amp; Safety</i>	39.561	1.486	1.447	1.359	-	1.359	1.490	1.552	1.561	1.591	Continuing	Continuing
0592: <i>Acft &amp; Ordnance Safety</i>	31.032	1.289	1.068	1.045	-	1.045	1.050	1.135	1.137	1.160	Continuing	Continuing
1819: <i>CV Acft Fire Suppress System</i>	0.781	0.650	0.615	0.533	-	0.533	0.583	0.611	0.616	0.628	Continuing	Continuing

# The FY 2015 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015 Base</b>	<b>FY 2015 OCO</b>	<b>FY 2015 Total</b>
Previous President's Budget	8.783	5.591	5.750	-	5.750
Current President's Budget	7.970	5.591	4.325	-	4.325
Total Adjustments	-0.813	-	-1.425	-	-1.425
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.108	-			
• Rate/Misc Adjustments	-	-	-1.425	-	-1.425
• Congressional General Reductions	-0.705	-	-	-	-
Adjustments					

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy		Date: March 2014
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability	
<u>Change Summary Explanation</u> Technical: Not applicable.  0584- Advanced Helmet Vision System (AHVS) and Laboratory Testing ended in 4Qtr FY13 due to low acuity and excessive heating during laboratory testing. AHVS Safety of Flight Testing was removed due to the low acuity and excessive heating failure that occurred during laboratory testing. 1819- Fire Fighting schedule included for 1st Qtr FY13 thru 4th Qtr FY19.		

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability				Project (Number/Name) 0584 / Acft Protective Clothing			
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
0584: Acft Protective Clothing	87.268	4.545	2.461	1.388	-	1.388	2.605	2.691	2.721	2.774	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		

# The FY 2015 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)**

	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>
<b>Title:</b> Advanced Technology Crew Station  <div style="text-align: right;"><b>Articles:</b></div>	3.478	1.575	0.831
<b>FY 2013 Accomplishments:</b> Improved manufacturability of digital, high resolution (4 megapixel) night cameras. Begin development of high resolution (4 megapixel) displays. Continued 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.  <b>FY 2014 Plans:</b> Continue high resolution and micro display development. Explore development of integrated short wave infrared and near infrared cameras.  <b>FY 2015 Plans:</b> Continue development and testing of 4+ megapixel cameras and displays. Begin integration into fully digital night vision goggle. Integrate head/neck injury model into protection flight equipment testing.	-	-	-
<b>Title:</b> Advanced Integrated Life Support System  <div style="text-align: right;"><b>Articles:</b></div>	1.067	0.886	0.557
<b>FY 2013 Accomplishments:</b>	-	-	-

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2015 Navy		<b>Date:</b> March 2014	
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603216N / <i>Aviation Survivability</i>	<b>Project (Number/Name)</b> 0584 / <i>Acft Protective Clothing</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2013</b>	<b>FY 2014</b>
<p>Worked jointly with Air Force and Army to expand the anthropometric database. Used injury data and Navy aircrew anthropometry to further improve aircrew accommodation (seating and protective personal equipment) and injury analysis / mitigation. Finished study of adding corrective prescriptions to laser eye protection.</p> <p><b><i>FY 2014 Plans:</i></b> 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.</p> <p><b><i>FY 2015 Plans:</i></b> Continue 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.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>		4.545	2.461
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
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.			
<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**

PE 0603216N: *Aviation Survivability*  
Navy

R-1 Line #26

R-1 Program Element (Number/Name)	Program Element Description	Program Element Type	Program Element Status	Program Element Location	Program Element Date	Program Element Author	Program Element Reviewer	Program Element Approver	Program Element Comments
1.0	1.0.1	1.0.1.1	1.0.1.1.1	1.0.1.1.1.1	1.0.1.1.1.1.1	1.0.1.1.1.1.1.1	1.0.1.1.1.1.1.1.1	1.0.1.1.1.1.1.1.1.1	1.0.1.1.1.1.1.1.1.1.1

Project (Number/Name)	Start Date	End Date	Duration (Days)	Project Manager	Status	Notes
101/Project Alpha	2023-01-15	2023-03-10	55	John Doe	Completed	Exceeded budget by 5%.
102/Project Beta	2023-02-01	2023-04-15	74	Jane Smith	In Progress	On track.
103/Project Gamma	2023-03-01	2023-05-20	79	Mike Johnson	On Hold	Waiting for client approval.
104/Project Delta	2023-04-01	2023-06-10	70	Sarah Lee	Planned	Initial planning phase.
105/Project Epsilon	2023-05-01	2023-07-15	75	David Kim	On Hold	Resource allocation issues.
106/Project Zeta	2023-06-01	2023-08-10	71	Emily White	Planned	Scope definition in progress.
107/Project Eta	2023-07-01	2023-09-15	76	Chris Brown	On Hold	Vendor selection pending.
108/Project Theta	2023-08-01	2023-10-10	70	Alex Green	Planned	Market research ongoing.
109/Project Iota	2023-09-01	2023-11-15	75	Nora Black	On Hold	Legal review required.
110/Project Kappa	2023-10-01	2023-12-10	70	Benjamin Gray	Planned	Final budget review.

PE 0603216N / Aviation Survivability

0584 / Acft Protective Clothing

[illegible]

2015DON - 0603216N - 0584

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability				Project (Number/Name) 0591 / Acft Survivability, Vulnerability & Safety			
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
0591: Acft Survivability, Vulnerability & Safety	39.561	1.486	1.447	1.359	-	1.359	1.490	1.552	1.561	1.591	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		
# The FY 2015 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 2013	FY 2014	FY 2015	
Title: Technology Requirements  Articles:  FY 2013 Accomplishments: 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, 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.  FY 2015 Plans: Planned trade studies include acoustic and infrared signature reduction, rotary wing survivability requirements, threat systems analysis, and updates to the Survivability Master Plan.									0.240	0.215	0.190	
									-	-	-	
Title: Technology Design & Development  Articles:  FY 2013 Accomplishments: Evaluated equipment/technologies to reduce infrared footprint of operational platforms. Evaluated alternate transparent armor materials for canopy upgrades. Develop platform specific gearbox polymer modifications. Developed biofuels-compatible fuel bladders for testing. Developed alternate O2 bottles.  FY 2014 Plans:									0.926	0.782	0.761	
									-	-	-	

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2015 Navy		<b>Date:</b> March 2014	
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603216N / Aviation Survivability	<b>Project (Number/Name)</b> 0591 / Acft Survivability, Vulnerability & Safety	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2013</b>	<b>FY 2014</b>
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.			
<b>FY 2015 Plans:</b> Assess technologies to address shortfalls identified as part of the OPNAV Aircraft Survivability Investment Strategy project, with emphasis on acoustic and infrared signature reduction of operational platforms. Develop polymer applications for self-sealing fuel and lubricant systems to meet stated operational requirements. Conduct asymmetric threats modeling and analyses based on accumulated combat field assessments.			
<b>Title:</b> Technology Test & Evaluation		0.320	0.450
<b>Articles:</b>		-	-
<b>FY 2013 Accomplishments:</b> Performed live fire testing on platform specific gearbox polymer modifications. Performed live fire test on biofuels-compatible fuel bladder. Performed live fire test on alternate O2 bottles.			
<b>FY 2014 Plans:</b> 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.			
<b>FY 2015 Plans:</b> Perform testing on candidate signature reduction materials/hardware. Perform testing to validate asymmetric threats modeling results.			
<b>Accomplishments/Planned Programs Subtotals</b>		1.486	1.447
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
Primary Hardware Development will be performed under either a Cost Plus Fixed Fee or a Firm Fixed Price contract.			

UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2015 Navy		<b>Date:</b> March 2014
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603216N / <i>Aviation Survivability</i>	<b>Project (Number/Name)</b> 0591 / <i>Acft Survivability, Vulnerability &amp; Safety</i>
<b>E. Performance Metrics</b> 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.		

# UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy																Date: March 2014												
Appropriation/Budget Activity 1319 / 4										R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability								Project (Number/Name) 0591 / Acft Survivability, Vulnerability & Safety										
Acft Survivability, Vulnerability & Safe	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Technology Requirements																												
				Survivability Master Plan Update 2								Survivability Master Plan Update 3												Survivability Master Plan Update 5				
	Asymmetric Threat Evaluations																											
Technology Design & Development																												
	Rotary Wing Prototype Hardware																											
	Survivability Improvements																											
Technology Test & Evaluation																												
	Rotary Wing Ballistic Testing																											
	Rotary Wing Signature Tests																											
	Prototype Hardware Tests																											
2015DON - 0603216N - 0591																												

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability				Project (Number/Name) 0592 / Acft & Ordnance Safety			
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
0592: Acft & Ordnance Safety	31.032	1.289	1.068	1.045	-	1.045	1.050	1.135	1.137	1.160	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		
# The FY 2015 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 2013	FY 2014	FY 2015
Title: Insensitive Munitions (IM) <div>Articles:</div>										1.289	1.068	1.045
										-	-	-
FY 2013 Accomplishments: Improve Air-to-Air Demonstration: Continued Sidewinder warhead/rocket motor evaluation in support of PMA 259 FY14 planned transition. Continued IM technology demonstration for 8-inch metal matrix rocket motor.  Improve Air-Launched Weapons: Continued IM technical evaluation/demonstration for Bomb Live Unit 110 in support of current transition efforts and the PMA 201 plan of action and milestones. Continued IM evaluation for Tomahawk tandem (Joint Multi-Effects Warhead System) warhead, and initiate demonstration. Continued minimum smoke propellant demonstration for rockets (transition out of Joint Service IM Technology Program).  Advanced Containment/Case/Warhead Materials: Continued 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: Finalized Advanced Anti-Radiation Guided Missile (AARGM) container IM testing for PMA 242. Initiated shape charge jet test/evaluation for NAVAIR priority IM weapons. Initiate Sidewinder Block III container design/demonstration to support PMA 259 transition. Continued 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.												

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2015 Navy			<b>Date:</b> March 2014		
<b>Appropriation/Budget Activity</b> 1319 / 4		<b>R-1 Program Element (Number/Name)</b> PE 0603216N / <i>Aviation Survivability</i>		<b>Project (Number/Name)</b> 0592 / <i>Acft &amp; Ordnance Safety</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>			<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>
<p>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).</p> <p>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.</p> <p>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.</p> <p><b>FY 2015 Plans:</b></p> <p>Improve Air-to-Air Demonstration: Continue Sidewinder warhead/rocket motor technology risk reduction evaluation in support of PMA 259 FY16 planned block II+/III transition. Continue IM technology evaluation for metal matrix composite rocket motor IM demonstration in support of future Navy rocket transitions.</p> <p>Improve Air-Launched Weapons: Continue minimum smoke (MS) propellant demonstration of a cast/cure MS composite propellant that will meet -65 degree requirement for fixed-wing platforms in the current Hellfire configuration. Conduct booster/explosive transition testing and system demonstrations for JIMTP transition explosive for the PMA-201 planned BLU 110 upgrade.</p> <p>Advanced Containment/Case/Warhead Materials: Initiate a Mk 135 rocket motor nozzle design/demonstration to improve operational performance in the hybrid Mk 135, enabling both improved IM and operational performance of the Tomahawk missile.</p> <p>Shock/Blast Barrier Protection Modeling, Demonstration, and Testing: Continue shape charge jet (SCJ) barrier evaluation/demonstration for SCJ mitigation in air-launched systems.</p> <p>Advanced Energetic Materials: Finalize evaluation of coated explosive material premix for safe production scale manufacture of C-139 explosive (affordable, high-performance IM explosive) and testing for new production research department explosive (elimination of browning effect).</p>					
<b>Accomplishments/Planned Programs Subtotals</b>			1.289	1.068	1.045

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2015 Navy		<b>Date:</b> March 2014
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603216N / <i>Aviation Survivability</i>	<b>Project (Number/Name)</b> 0592 / <i>Acft &amp; Ordnance Safety</i>
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A		
<b>Remarks</b>		
<b>D. Acquisition Strategy</b> All planned programs are accomplished via civilian labor and use of government testing facilities.		
<b>E. Performance Metrics</b> 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.		

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy																Date: March 2014												
Appropriation/Budget Activity 1319 / 4										R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability								Project (Number/Name) 0592 / Acft & Ordnance Safety										
Acft & Ordnance Safety	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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																											

2015DON - 0603216N - 0592

2015DON - 0603216N - 0592

**UNCLASSIFIED**

Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy										Date: March 2014		
Appropriation/Budget Activity 1319 / 4					R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability				Project (Number/Name) 1819 / CV Acft Fire Suppress System			
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
1819: CV Acft Fire Suppress System	0.781	0.650	0.615	0.533	-	0.533	0.583	0.611	0.616	0.628	Continuing	Continuing
Quantity of RDT&E Articles	0.000	-	-	-	-	-	-	-	-	-		
# The FY 2015 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 2013	FY 2014	FY 2015
Title: Fire-Fighting										0.650	0.615	0.533
										Articles:		
FY 2013 Accomplishments:												
Continued development of Aqueous Film Forming Foam application nozzle and procedures for Electromagnetic Aircraft Launch System (EMALS). Researched means to prevent aircraft loss due to lithium ion battery runaway casualty. Initiated 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. Concluded evaluation of the effectiveness of and economies afforded by intermittent weapons cooling streams (vice constant). Developed 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 deck firefighters from weapons in mishap scenarios. Perform risk analysis tools survey and capability gap assessment in support of mishap scenario task.												
FY 2015 Plans:												
Continue research to prevent aircraft loss and ship storage concerns due to Li-ion battery runaway casualty. Conclude research into thermal imaging camera usage in weapons cooling analysis and provide guidance for flight deck usage and training. Conduct research and testing of lightweight aircraft tiedown chains. Continue work on EMALS fire suppression procedures and equipment. Conduct research into commercial product or development to replace the existing flight deck crash-fire-rescue boot. Continue												

# UNCLASSIFIED

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2015 Navy		<b>Date:</b> March 2014	
<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603216N / <i>Aviation Survivability</i>	<b>Project (Number/Name)</b> 1819 / <i>CV Acft Fire Suppress System</i>	
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2013</b>	<b>FY 2014</b>
research into finding battery-operated rescue saw. Continue research and testing for development of procedures and training for helicopter rollover rescue aboard air-capable ships.			
<b>Accomplishments/Planned Programs Subtotals</b>		0.650	0.615
<b>C. Other Program Funding Summary (\$ in Millions)</b>			
N/A			
<b>Remarks</b>			
<b>D. Acquisition Strategy</b>			
This is a non-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.			
<b>E. Performance Metrics</b>			
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.			

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy																Date: March 2014													
Appropriation/Budget Activity 1319 / 4												R-1 Program Element (Number/Name) PE 0603216N / Aviation Survivability				Project (Number/Name) 1819 / CV Acft Fire Suppress System													
Proj 1819		FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
		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
CV Acft Fire Suppression Systems		Fire Fighting																											