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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Navy **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				PE 0305231N: <i>MQ-8 UAV</i>							
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	25.497	10.665	108.248	-	108.248	77.630	37.000	-	-	0.000	259.040
2768: <i>VTUAV</i>	25.497	10.665	108.248	-	108.248	77.630	37.000	-	-	0.000	259.040

A. Mission Description and Budget Item Justification

MQ-8 Unmanned Aerial Vehicle Joint Military Intelligence Program.

The MQ-8 (popular name "Fire Scout") Vertical Take-off Unmanned Aerial Vehicle (VTUAV) provides real-time and non-real-time Intelligence, Surveillance and Reconnaissance data to tactical users without the use of manned aircraft or reliance on limited joint theater or national assets. The baseline MQ-8 can accomplish missions including over-the-horizon tactical reconnaissance, classification, targeting, laser designation and battle management (including communications relay). The MQ-8 launches and recovers vertically and can operate from air capable ships, as well as confined area land bases. Other characteristics include autonomous air vehicle launch and recovery, autonomous waypoint navigation with command override capability, the incorporation of weapons, the incorporation of an electro-optical/infra-red/laser designator-laser range finder modular mission payload, Radar and other specialty payloads. Interoperability is achieved through the use of the Tactical Control System (TCS) software in the ground control station, and through the use of the Tactical Common Data Link (TCDL). The data from the MQ-8 will be provided through standard DoD Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance.

B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	25.533	10.665	3.638	-	3.638
Current President's Budget	25.497	10.665	108.248	-	108.248
Total Adjustments	-0.036	-	104.610	-	104.610
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	-	-	104.681	-	104.681
• Section 219 Reprogramming	-0.035	-	-	-	-
• Rate/Misc Adjustments	-	-	-0.071	-	-0.071
• Congressional General Reductions	-0.001	-	-	-	-
Adjustments					

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APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development		R-1 ITEM NOMENCLATURE PE 0305231N: MQ-8 UAV
<u>Change Summary Explanation</u> Technical: OSD directed Navy to modify the MQ-8 system to achieve increased aircraft flight endurance to provide an interim maritime capability to Special Operations Forces (SOF). This requirement will require a larger airframe. New payload integration will also be done as part of the effort. Additionally, the CNO has directed a rapid fielding of a limited weapon capability to VTUAV. Schedule: Acquisition milestones have been adjusted due to software and flight test delays. - Initial Operational Capability (IOC) moved from 2Q FY10 to 1Q FY12. - Completion of Operational Evaluation OT-C-1 moved from 2Q FY10 to 1Q FY12. - Full Rate Production (FRP) decision moved to 2Q FY15 to accomodate endurance modifications. Additional Low Rate Initial Production (LRIP) quantities and production years have been added to the schedule. Extends LRIP through FY14. Total LRIP quantity exceeds 10%. The completion dates of the following events have moved: - Engineering and Manufacturing Development VTUAV from 2Q FY10 to 4Q FY11. With the addition of LRIP IV through VIII, FRP awards and deliveries have been adjusted.		

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy DATE: February 2011

APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305231N: MQ-8 UAV	PROJECT 2768: VTUAV
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COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
2768: VTUAV	25.497	10.665	108.248	-	108.248	77.630	37.000	-	-	0.000	259.040
Quantity of RDT&E Articles	0	0	2	0	2	0	0	0	0		

A. Mission Description and Budget Item Justification

The MQ-8 (popular name "Fire Scout") Vertical Take-off Unmanned Aerial Vehicle (VTUAV) provides real-time and non-real-time Intelligence, Surveillance and Reconnaissance data to tactical users without the use of manned aircraft or reliance on limited joint theater or national assets. The baseline MQ-8 can accomplish missions including over-the-horizon tactical reconnaissance, classification, targeting, laser designation and battle management (including communications relay). The MQ-8 launches and recovers vertically and can operate from air capable ships, as well as confined area land bases. Other characteristics include autonomous air vehicle launch and recovery, autonomous waypoint navigation with command override capability, the incorporation of weapons, the incorporation of an electro-optical/infra-red laser designator-laser range finder modular mission payload, radar and other specialty payloads. Interoperability is achieved through the use of the Tactical Control System (TCS) software in the ground control station, and through the use of the Tactical Common Data Link (TCDL). The data from the MQ-8 will be provided through standard DoD Command, Control, Communications, Computers and Intelligence, Surveillance, and Reconnaissance system architectures and protocols.

The MQ-8 system is composed of air vehicles and associated spares and support equipment, electro-optical/infra-red/laser designator-range finder payloads, Ground Control Stations (with TCS), aircraft and control station TC DL elements, and a Unmanned Aerial Vehicle Common Automatic Recovery System (UCARS) for automatic takeoff and landing from ships. The MQ-8 system will support the Surface Warfare, Mine Countermeasures Warfare and Anti-Submarine Warfare mission modules while operating on Littoral Combat Ship (LCS). The system will also be integrated on select surface combatants that are air capable and can host MQ-8 ancillary equipment. A limited number of land based control stations supplement the system to support shore based operations, such as predeployment, acceptance flights and expeditionary operations. These assets will also support depot level maintenance/post maintenance activities.

MQ-8 endurance modification is an Engineering Change Proposal (ECP) to the existing system and is in response to the Special Operations Forces (SOF), endorsed by US Central Command (CENTCOM), request for a sea based medium range, persistent Intelligence Surveillance and Reconnaissance unmanned air system. Office of the Secretary of Defense (OSD) CAPE(IW) evaluated options to meet this urgent requirement. This resulted in OSD directing the Navy to upgrade Fire Scout for increased endurance, procure additional aircraft, and modify 12 additional ships in the Fiscal Year Defense Plan (FYDP) to support multiple orbits through FY18, and to initiate Medium Range Maritime UAS (MRMUAS) follow-on program. MRMUAS will provide the long term capability for the Beyond Line of Sight SOF and Navy Missions. MRMUAS is a potential joint program. The fundamental concept of the MQ-8 ECP is to leverage over 85% of the Fire Scout system hardware and 95% of the software. The MQ-8 ECP will use the existing Ground Control Station (GCS), Command and Control (C2) links, avionics, payloads, and logistics. The MQ-8 ECP will rehost the avionics, software and C2 sub-systems into a new airframe. A new airframe will provide the extended endurance and payload capacity to support, on an interim basis, the SOF requirements for orbital coverage in specific Areas of Responsibility (AOR). The MQ-8 ECP will retain the baseline targeting capability with an Electro-Optic/Infrared (EO/IR) payload and be compatible with the existing ground control stations and C2 architecture for operations at sea or from an expeditionary base ashore. The MQ-8 ECP falls within the existing program requirements Capabilities Production Document (CPD), but will require contract modification to allow the prime contractor to select a different airframe supplier. The program will carry forward the payloads, such as Brite Star II, COBRA, Automated Identification System (AIS), specialty payloads, and radar planned for the MQ-8B.

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy		DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305231N: MQ-8 UAV	PROJECT 2768: VTUAV		
Radar, as part of the program of record, will continue development and be leveraged for integration in the MQ-8. The MQ-8 increased endurance and payload capacity may allow the Navy to fully meet the LCS mission requirements with fewer aircraft lowering the Fire Scout's total ownership cost. A weapons Rapid Deployment Capability (RDC) for Fire Scout is also part of PB12. The Chief of Naval Operations (CNO) has directed that a Rapid Deployment/ Development Capability (RDC) for weaponizing Fire Scout be initiated in FY11 and completed by 3QFY12. The Navy is requesting to initiate this effort in FY11 using an Above Threshold Reprogramming. A Quick Reaction Assessment is planned for 3QFY12 and will leverage off planned Fire Scout LCS 1 SUW mission package testing. The VTUAV program is post Milestone C (MS C), which was approved in May 2007. MS C authorized entry into Low Rate Initial Production. A total of seven air vehicles and three control stations were purchased with Research Development Test & Evaluation (RDT&E) funds under System Design and Development.				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
Title: Hardware and System Development Articles: FY 2010 Accomplishments: Continued incremental integration of MQ-8 Air Vehicles to support Engineering and Manufacturing Development (EMD) program. Continued preliminary design for radar integration. Continued combined developmental and operational testing. Continued integration of the Coastal Battlefield Reconnaissance and Analysis (COBRA) payload. Continue to support LCS integration. FY 2011 Plans: Continue incremental integration of MQ-8 Air Vehicles to support the EMD program. Start integration of radar. Continue integration of the COBRA payload. Continue to support LCS integration. Integrate MQ-8 onto USS HALYBURTON and conduct testing with specialty payloads to deploy the system land base in Operation Enduring Freedom (OEF). Begin MQ-8 ECP integration. FY 2012 Plans: Continue integration of MQ-8. Start development and testing of SOF provided payloads. Continue integration of the radar, specialty payloads, and COBRA payload. Continue to support LCS integration. Start Weapons requirement development, integration and a Quick Reaction Assessment as required for RDC designated programs. Continue MQ-8 ECP integration.		20.300 0	7.400 0	92.000 2
Title: Development Testing Articles: FY 2010 Accomplishments:		0.392 0	1.165 0	6.300 0

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Exhibit R-2A, RDT&E Project Justification: PB 2012 Navy							DATE: February 2011				
APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development			R-1 ITEM NOMENCLATURE PE 0305231N: MQ-8 UAV			PROJECT 2768: VTUAV					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)							FY 2010	FY 2011	FY 2012		
Continued incremental integration of MQ-8 Air Vehicles to support EMD program. Continued testing of the VTUAV system. Continued LCS integration efforts. FY 2011 Plans: Continue OPEVAL. Continue LCS integration efforts. Start MQ-8 ECP integration. FY 2012 Plans: Complete OPEVAL. Start testing VTUAV SOF system payloads. Continue LCS integration efforts. Start Weapons integration efforts. Continue MQ-8 ECP integration.											
Title: Engineering and Technical Services Articles: FY 2010 Accomplishments: Continued incremental integration of MQ-8 Air Vehicles to support EMD program. Continued engineering management, program technical management, and management support for the VTUAV system. These included transportation of system assets, program office personnel travel, and contract support services. Continued to support LCS integration and USS HALYBURTON testing. FY 2011 Plans: Continue engineering management, program technical management, and management support for the VTUAV system. These include transportation of system assets, program office personnel travel, and contract support services. Continue to support LCS integration and payloads integration. Start MQ-8 ECP integration. FY 2012 Plans: Continue engineering management, program technical management, and management support for the VTUAV system. These include transportation of system assets, program office personnel travel, and contract support services. Continue to support LCS integration and payloads integration. Start Weapons integration, weapon studies, systems engineering, and test and evaluation. Continue MQ-8 ECP integration.							4.805 0	2.100 0	9.948 0		
Accomplishments/Planned Programs Subtotals							25.497	10.665	108.248		
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• RD TEN, 0305204N: Tactical Unmanned Aerial Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	562.137

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APPROPRIATION/BUDGET ACTIVITY 1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305231N: MQ-8 UAV				PROJECT 2768: VTUAV			
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• APN, 044300: MQ-8 UAV	136.877	47.484	191.986	0.000	191.986	166.843	191.110	158.060	179.932	1,066.710	2,264.042
• APN, 060510: MQ-8 UAV Spares	7.320	3.488	6.891	0.000	6.891	13.742	14.324	14.822	14.942	83.712	184.308
D. Acquisition Strategy											
Continue incremental integration of MQ-8 Air Vehicles to support the Engineering and Manufacturing Development program. Continue the MQ-8 program, payload integration and LCS integration support. Full Rate Production and Initial Operational Capability (IOC) will follow completion of Operation Test and Evaluation. Weaponize VTUAV.											
E. Performance Metrics											
Successfully achieve IOC. Successfully continue Coastal Battlefield Reconnaissance and Analysis integration. Successfully continue Radar Sensor Integration. Successfully continue LCS Ship Integration. Successfully complete Operational Test. Successfully achieve weaponization. Successfully support interim SOF mission.											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy											DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT						
1319: Research, Development, Test & Evaluation, Navy BA 7: Operational Systems Development				PE 0305231N: MQ-8 UAV				2768: VTUAV						
Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Primary Hardware Development	SS/FFP	Northrop Grumman Corp:San Diego, CA	20.300	6.400	Nov 2010	87.000	Nov 2011	-		87.000	0.000	113.700	39.400	
Primary Hardware Development	SS/FFP	Raytheon Corp:Falls Church, VA	-	0.400	Feb 2011	5.000	Nov 2011	-		5.000	0.000	5.400	1.400	
Subtotal			20.300	6.800		92.000		-		92.000	0.000	119.100	40.800	
Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Integrated Logistics Support	Various	Various:Various	-	1.165	Nov 2010	1.700	Nov 2011	-		1.700	0.000	2.865		
Subtotal			-	1.165		1.700		-		1.700	0.000	2.865		
Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation	WR	NAWCAD:PAXRV, MD	-	-		4.000	Nov 2011	-		4.000	0.000	4.000		
Operational Test & Evaluation	WR	NAWCAD:PAXRV, MD	0.050	0.600	Nov 2010	0.600	Nov 2011	-		0.600	0.000	1.250		
Prior Years T&E	Various	Various:Various	0.342	-		-		-		-	0.000	0.342		
Subtotal			0.392	0.600		4.600		-		4.600	0.000	5.592		
Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Government Engineering Support	WR	NAWCAD:PAXRV, MD	4.775	1.658	Nov 2010	7.948	Nov 2011	-		7.948	0.000	14.381		
	Various	Various:Various	-	0.370	Nov 2010	1.600	Nov 2011	-		1.600	0.000	1.970		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Navy											DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>				R-1 ITEM NOMENCLATURE PE 0305231N: <i>MQ-8 UAV</i>				PROJECT 2768: <i>VTUAV</i>					

Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support													
Travel	WR	NAVAIR:PAXRV, MD	0.030	0.072	Oct 2010	0.400	Nov 2011	-		0.400	0.000	0.502	
Subtotal			4.805	2.100		9.948		-		9.948	0.000	16.853	

Remarks Travel contract type is TO.													
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	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	25.497	10.665		108.248		-		108.248	0.000	144.410	

Remarks											
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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Navy		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305231N: <i>MQ-8 UAV</i>	PROJECT 2768: <i>VTUAV</i>

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305231N: <i>MQ-8 UAV</i>	PROJECT 2768: <i>VTUAV</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MQ-8 VTUAV				
Acquisition Milestones: Milestones: Initial Operational Capability (IOC)	1	2012	1	2012
Acquisition Milestones: Milestones: Full Rate Production (FRP)	2	2015	2	2015
Acquisition Milestones: Milestones: MQ-8 ECP IOC	1	2015	1	2015
Systems Development: Engineering and Manufacturing Development: VTUAV	1	2010	4	2011
Systems Development: Engineering and Manufacturing Development: COBRA Integration	1	2010	4	2011
Systems Development: Engineering and Manufacturing Development: MQ-8 ECP	3	2011	1	2015
Systems Development: Engineering and Manufacturing Development: Weapons Rapid Deployment Capability	2	2011	3	2012
Systems Development: Engineering and Manufacturing Development: Payload, Obsolescence, Software Studies and Analysis	1	2010	4	2015
Reviews: MQ-8 ECP: System Readiness Review	4	2011	4	2011
Reviews: MQ-8 ECP: Preliminary Design Review	2	2012	2	2012
Reviews: MQ-8 ECP: Critical Design Review	3	2012	3	2012
Reviews: MQ-8 ECP: Military Utility Assessment	3	2014	3	2014
Reviews: Weapons: System Requirement Review	3	2011	3	2011
Reviews: Weapons: Preliminary Design Review	3	2011	3	2011
Reviews: Weapons: Critical Design Review	4	2011	4	2011
Reviews: Weapons: Quick Reaction Assessment	3	2012	3	2012
Test & Evaluation (T&E): Technical Evaluation: COBRA IT-D-1	4	2010	4	2011
Test & Evaluation (T&E): Operational Evaluation: OT-C1 OPEVAL	3	2011	1	2012
Test & Evaluation (T&E): Operational Evaluation: LCS Integration	1	2010	4	2012

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Navy			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 1319: <i>Research, Development, Test & Evaluation, Navy</i> BA 7: <i>Operational Systems Development</i>	R-1 ITEM NOMENCLATURE PE 0305231N: <i>MQ-8 UAV</i>	PROJECT 2768: <i>VTUAV</i>	

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: Contract Awards: Low Rate Initial Production Aircraft Procurement Navy (LRIP) (APN) Contract Award IV	3	2010	3	2010
Production Milestones: Contract Awards: LRIP APN Contract Award V	3	2011	3	2011
Production Milestones: Contract Awards: LRIP Contract Awards VI	3	2012	3	2012
Production Milestones: Contract Awards: LRIP Contract Awards VII	3	2013	3	2013
Production Milestones: Contract Awards: LRIP Contract Awards VIII	3	2014	3	2014
Production Milestones: Contract Awards: FRP Contract Awards I	3	2015	3	2015
Deliveries: Air Vehicles - LRIP II APN	2	2010	1	2011
Deliveries: Air Vehicles - LRIP III APN	2	2011	4	2011
Deliveries: Air Vehicles - LRIP IV APN	1	2012	1	2013
Deliveries: Air Vehicles - LRIP V APN	2	2013	1	2014
Deliveries: Air Vehicles - LRIP VI	2	2014	1	2015
Deliveries: Air Vehicles - LRIP VII	2	2015	1	2016
Deliveries: Air Vehicles - LRIP VIII	2	2016	4	2016

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