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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305913F: NUDET Detection System (Space)							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	41.102	83.846	72.199	0.000	72.199	82.818	80.287	61.306	50.454	Continuing	Continuing
672808: Nuc Detonation Det Sys (sensors)	41.102	83.846	72.199	0.000	72.199	82.818	80.287	61.306	50.454	Continuing	Continuing

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

The Nuclear Detonation (NUDET) Detection System (NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for United States Northern Command (USNORTHCOM)/ North American Aerospace Defense Command (NORAD) (Integrated Tactical Warning and Attack Assessment (ITW/AA)), United States Strategic Command (USSTRATCOM) (Nuclear Force Management), and Air Force Technical Applications Center (AFTAC) (Treaty Monitoring). NDS consists of space and ground segments. The current space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites and (optical, x-rays, and neutron and gamma rays) on Defense Support Program (DSP) satellites. The ground segment includes the Integrated Correlation and Display System (ICADS), Ground NDS Terminals (GNT) and Universal GNT (UGNT).

This NDS Program Element (PE) includes research and development, testing and fielding of ICADS, GNT, UGNTand the integration of Space and Atmospheric Burst Reporting System (SABRS) sensors on Geostationary (GEO) satellites. ICADS provides a fixed ground receiving station and GNT provides the survivable ground receiving station. UGNT is a transportable set of satellite ground station equipment and software. The UGNT will receive and processes data from sensors on GPS and DSP satellites and disseminates NUDET reports to users. SABRS is the future neutron/gamma sensor payload that will be hosted on a classified GEO satellite to replace the NDS sensor payload on DSP satellites. Sensor integration for GPS satellites is funded in the GPS Space & Control PE (0305165F) for GPS Block IIF and the GPS III Space Segment PE (0305265F) for GPS III satellites. Ground segment development remains in the NDS PE. DOE funds new NDS sensor research and production .

This program is in Budget Activity 7 - Operational System Development because it supports operational systems.

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APPROPRIATION/BUDGET ACTIVITY		R-1 ITEM NOMENCLATURE			
3600: Research, Development, Test & Evaluation, Air Force		PE 0305913F: NUDET Detection System (Space)			
BA 7: Operational Systems Development					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	41.102	84.021	0.000	0.000	0.000
Current President's Budget	41.102	83.846	72.199	0.000	72.199
Total Adjustments	0.000	-0.175	72.199	0.000	72.199
• Congressional General Reductions		-0.175			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	72.199	0.000	72.199
Change Summary Explanation					
The FY2010 President's Budget submittal did not reflect FY2011 through FY2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305913F: NUDET Detection System (Space)				PROJECT 672808: Nuc Detonation Det Sys (sensors)			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
672808: Nuc Detonation Det Sys (sensors)	41.102	83.846	72.199	0.000	72.199	82.818	80.287	61.306	50.454	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		
A. Mission Description and Budget Item Justification											
<p>The Nuclear Detonation (NUDET) Detection System (NDS) provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for United States Northern Command (USNORTHCOM)/ North American Aerospace Defense Command (NORAD) (Integrated Tactical Warning and Attack Assessment (ITW/AA)), United States Strategic Command (USSTRATCOM) (Nuclear Force Management), and Air Force Technical Applications Center (AFTAC) (Treaty Monitoring). NDS consists of space and ground segments. The current space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites and (optical, x-rays, and neutron and gamma rays) on Defense Support Program (DSP) satellites. The ground segment includes the Integrated Correlation and Display System (ICADS), Ground NDS Terminals (GNT) and Universal GNT (UGNT).</p> <p>This NDS Program Element (PE) includes research and development, testing and fielding of ICADS, GNT, UGNT and the integration of Space and Atmospheric Burst Reporting System (SABRS) sensors on Geostationary (GEO) satellites. ICADS provides a fixed ground receiving station and GNT provides the survivable ground receiving station. UGNT is a transportable set of satellite ground station equipment and software. The UGNT will receive and processes data from sensors on GPS and DSP satellites and disseminates NUDET reports to users. SABRS is the future neutron/gamma sensor payload that will be hosted on a classified GEO satellite to replace the NDS sensor payload on DSP satellites. Sensor integration for GPS satellites is funded in the GPS Space &amp; Control PE (0305165F) for GPS Block IIF and the GPS III Space Segment PE (0305265F) for GPS III satellites. Ground segment development remains in the NDS PE. DOE funds new NDS sensor research and production .</p> <p>This program is in Budget Activity 7 - Operational System Development because it supports operational systems.</p>											
B. Accomplishments/Planned Program (\$ in Millions)											

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APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development				R-1 ITEM NOMENCLATURE PE 0305913F: NUDET Detection System (Space)				PROJECT 672808: Nuc Detonation Det Sys (sensors)			
B. Accomplishments/Planned Program (\$ in Millions)											
						FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	
MAJOR THRUST: Research and development, testing and fielding of ICADS, GNT, UGNT and the integration of SABRS on GEO satellites.  FY 2009 Accomplishments: In FY 2009: ICADS and GNT development, NDS sensor on-orbit qualification testing, SABRS on GEO host development and integration, SE&I and technical support.  FY 2010 Plans: In FY 2010: ICADS and GNT development, NDS sensor on-orbit qualification testing, SABRS on GEO host development and integration, SE&I and technical support.  FY 2011 Base Plans: In FY 2011: ICADS, and GNT development, NDS sensor on-orbit qualification testing, SABRS on GEO host development and integration, SE&I and technical support. Begin development of hardware and software for UGNT.  FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						41.102	83.846	72.199	0.000	72.199	
Accomplishments/Planned Programs Subtotals						41.102	83.846	72.199	0.000	72.199	
C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (6553): Related Activities:	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
• PE 0305913F: NDS (O&M)	7.163	7.381	8.591	0.000	8.591	8.598	8.836	9.197	9.714	0.000	0.000
• PE 0305913F (1): NDS (OPAF)	32.567	15.389	5.926	0.000	5.926	4.953	5.575	5.927	6.169	0.000	0.000

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0305913F (2): NDS (MPAF)	1.246	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
D. Acquisition Strategy											
The NDS Acquisition Strategy is to develop, field and sustain NDS satellite sensors and NDS ground data processing and distribution hardware and software as well as mission operational and technical program support to sustain the NDS capability on GPS and GEO satellites; funding is sent by Military Interdepartmental Purchase Request (MIPR) from DoD and Department of Energy (DoE) to Sandia and Los Alamos National Laboratories and other agencies on existing DOE contracts. Funding is MIPR'd to host satellite program office.											
E. Performance Metrics											
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.											

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2011 Air Force</b>											<b>DATE:</b> February 2010		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force</i> BA 7: <i>Operational Systems Development</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0305913F: <i>NUDET Detection System (Space)</i>				<b>PROJECT</b> 672808: <i>Nuc Detonation Det Sys (sensors)</i>					
<b>Product Development (\$ in Millions)</b>													
				<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
ICADS and GNT	MIPR	Sandia National Laboratory Albuquerque, NM	218.067	36.736	Nov 2009	31.125	Nov 2010	0.000		31.125	Continuing	Continuing	0.000
UGNT	MIPR	Various Albuquerque, NM	0.000	0.000		12.700	Nov 2010	0.000		12.700	Continuing	Continuing	0.000
On-orbit sensor testing	MIPR	Various Albuquerque, NM	23.895	2.465	Nov 2009	2.464	Nov 2010	0.000		2.464	Continuing	Continuing	0.000
SABRS	MIPR	Various Classified	45.126	34.400	Nov 2009	16.500	Nov 2010	0.000		16.500	Continuing	Continuing	0.000
Completed NDS Development Efforts	Various/ Various	Various Various	13.062	0.000		0.000		0.000		0.000	0.000	13.062	0.000
<b>Subtotal</b>			300.150	73.601		62.789		0.000		62.789			0.000
<b>Remarks</b>													
<b>Support (\$ in Millions)</b>													
				<b>FY 2010</b>		<b>FY 2011 Base</b>		<b>FY 2011 OCO</b>		<b>FY 2011 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Mission Support	Various/ Various	Various Various	25.453	5.225	Nov 2009	4.153	Nov 2010	0.000		4.153	Continuing	Continuing	0.000
Technical Support	Various/ Various	Various Various	26.687	2.348	Nov 2009	2.300	Nov 2010	0.000		2.300	Continuing	Continuing	0.000

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Support (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering & Integration (SE&I)	Various/ Various	Various El Segundo, CA	5.420	2.419	Nov 2009	2.700	Nov 2010	0.000		2.700	Continuing	Continuing	0.000
Completed NDS Support Efforts	Various/ Various	Various Various	5.185	0.000		0.000		0.000		0.000	0.000	5.185	0.000
Subtotal			62.745	9.992		9.153		0.000		9.153			0.000
Remarks													
Test and Evaluation (\$ in Millions)													
				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
Testing	PO	17th Test Squadron Schriever AFB, CO	0.888	0.253	Nov 2009	0.257	Nov 2010	0.000		0.257	Continuing	Continuing	0.000
Subtotal			0.888	0.253		0.257		0.000		0.257			0.000
Remarks													

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<div style="display: flex; justify-content: space-between;"> <div style="width: 25%;"></div> <div style="width: 20%; text-align: center;"> <b>Total Prior Years Cost</b> </div> <div style="width: 10%; text-align: center;"> <b>FY 2010</b> </div> <div style="width: 10%; text-align: center;"> <b>FY 2011 Base</b> </div> <div style="width: 10%; text-align: center;"> <b>FY 2011 OCO</b> </div> <div style="width: 10%; text-align: center;"> <b>FY 2011 Total</b> </div> <div style="width: 10%; text-align: center;"> <b>Cost To Complete</b> </div> <div style="width: 10%; text-align: center;"> <b>Total Cost</b> </div> <div style="width: 10%; text-align: center;"> <b>Target Value of Contract</b> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 25%;"><b>Project Cost Totals</b></div> <div style="width: 20%; text-align: center;">363.783</div> <div style="width: 10%; text-align: center;">83.846</div> <div style="width: 10%; text-align: center;">72.199</div> <div style="width: 10%; text-align: center;">0.000</div> <div style="width: 10%; text-align: center;">72.199</div> <div style="width: 10%;"></div> <div style="width: 10%; text-align: center;">0.000</div> </div>									
<b>Remarks</b> Total Prior Years Cost may include only FY 2009 data.									

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Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force

DATE: February 2010

## APPROPRIATION/BUDGET ACTIVITY

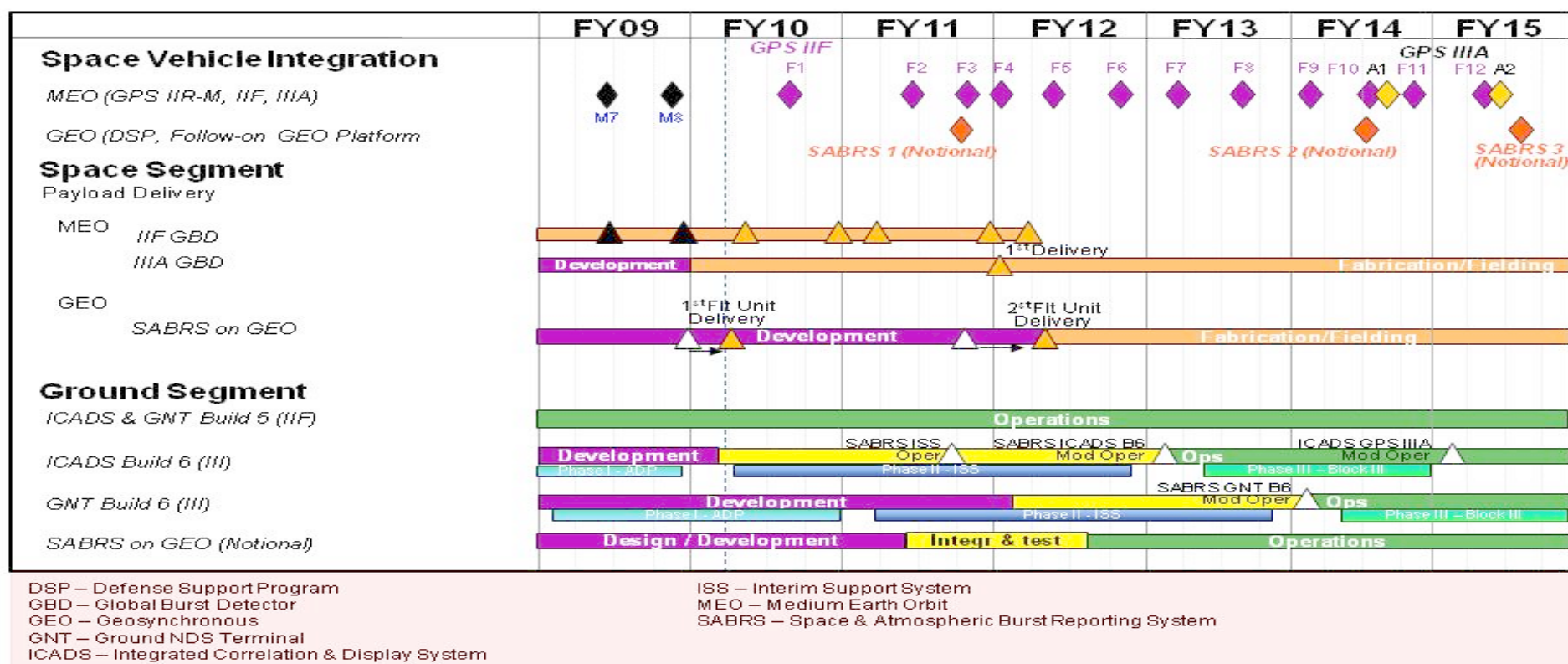
3600: Research, Development, Test & Evaluation, Air Force  
BA 7: Operational Systems Development

## R-1 ITEM NOMENCLATURE

PE 0305913F: NUDET Detection System  
(Space)

## PROJECT

672808: Nuc Detonation Det Sys (sensors)



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2011 Air Force			<b>DATE:</b> February 2010
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**Schedule Details**

<b>Event</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Global Burst Detector development for GPS IIIA complete	4	2009	4	2009
Space & Atmospheric Burst Reporting System (SABRS) on Alt Host 1 Development Complete	1	2010	1	2010
Integrated Correlation & Display System (ICADS) Build 6 Installation	1	2010	3	2010
ICADS Build 6 Test	3	2010	3	2010
ICADS SABRS Interim Support System (Alt Host 1) Integration & Testing Complete	3	2011	3	2011
Begin Universal Ground NDS Terminal (UGNT) development	1	2011	1	2011

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