

UNCLASSIFIED

PE NUMBER: 0305913F

PE TITLE: NUDET Detection System (Space)

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System (Space)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	34.691	32.266	60.281	38.610	41.393	39.429	38.529	Continuing	TBD
2808 Nuc Detonation Det Sys (sensors)	34.691	32.266	60.281	38.610	41.393	39.429	38.529	Continuing	TBD

(U) **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 USNORTHCOM/NORAD (Integrated Tactical Warning and Attack Assessment (ITW/AA)), USSTRATCOM (Nuclear Force Management), and AFTAC (Treaty Monitoring). NDS consists of space and ground segments. The space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites, Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays), and Space Based Infrared Systems (SBIRS) satellites. The ground segment includes the Integrated Correlation and Display System (ICADS) and the Ground NDS Terminals (GNT).

This NDS program element funds Research and Development of ICADS, GNT, the Space and Atmospheric Burst Reporting System (SABRS), and NDS Analysis Payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. SABRS is the future neutron/gamma sensor payload on SBIRS satellites to replace the USNDS sensor payload on DSP satellites. NAP improves existing NDS capability and is integrated onto GPS Block IIR satellites 7-8/11-13 and IIRM satellites 1-4. DOE funds EMP sensor research and production. GPS Space & Control (PE 0305165F) funds sensor integration for Block IIF satellites with ground segment development remaining in the NDS PE.

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

(U) **B. Program Change Summary (\$ in Millions)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	34.826	32.783	60.494
(U) Current PBR/President's Budget	34.691	32.266	60.281
(U) Total Adjustments	-0.135	-0.517	
(U) Congressional Program Reductions		-0.050	
Congressional Rescissions	-0.027	-0.467	
Congressional Increases			
Reprogrammings	-0.108		
SBIR/STTR Transfer			
(U) <u>Significant Program Changes:</u>			

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys
(sensors)

Cost (\$ in Millions)	FY 2005 Actual	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
2808 Nuc Detonation Det Sys (sensors)	34.691	32.266	60.281	38.610	41.393	39.429	38.529	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

(U) **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 USNORTHCOM/NORAD (Integrated Tactical Warning and Attack Assessment (ITW/AA)), USSTRATCOM (Nuclear Force Management), and AFTAC (Treaty Monitoring). NDS consists of space and ground segments. The space segment consists of NUDET detection sensors (optical, x-ray, dosimeters and electromagnetic pulse (EMP) sensor) on Global Positioning System (GPS) satellites, Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays), and Space Based Infrared Systems (SBIRS) satellites. The ground segment includes the Integrated Correlation and Display System (ICADS) and the Ground NDS Terminals (GNT).

This NDS program element funds Research and Development of ICADS, GNT, the Space and Atmospheric Burst Reporting System (SABRS), and NDS Analysis Payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. SABRS is the future neutron/gamma sensor payload on SBIRS satellites to replace the USNDS sensor payload on DSP satellites. NAP improves existing NDS capability and is integrated onto GPS Block IIR satellites 7-8/11-13 and IIRM satellites 1-4. DOE funds EMP sensor research and production. GPS Space & Control (PE 0305165F) funds sensor integration for Block IIF satellites with ground segment development remaining in the NDS PE.

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

(U) **B. Accomplishments/Planned Program (\$ in Millions)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue ICADS and GNT development	24.727	22.565	17.441
(U) Continue NDS sensor on-orbit qualification	2.605	3.463	3.531
(U) Continue Mission and Program support and system studies	4.020	2.386	3.789
(U) Continue Technical Support	3.339	3.852	3.970
(U) Begin SABRS on SBIRS development	0.000	0.000	31.550
(U) Total Cost	34.691	32.266	60.281

(U) **C. Other Program Funding Summary (\$ in Millions)**

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Operations & Maintenance, (PE 0305913F, BA 1, Operating Forces)	7.948	9.638	9.829	10.194	10.416	10.712	10.830	Continuing	TBD

UNCLASSIFIED

Exhibit R-2a, RDT&E Project Justification

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys
(sensors)(U) **C. Other Program Funding Summary (\$ in Millions)**

(U) Other Procurement, (PE 0305913F, BA 3 - Electronics and Telecom Equipment, P-63)	7.253	9.270	13.456	16.459	27.812	21.931	10.532	Continuing	TBD
(U) Missile Procurement, (PE 0305913F, BA 5 - Space & Other support, P-23)	0.000	0.000	0.000	0.000	1.253	3.544	4.334	Continuing	TBD

(U) **D. Acquisition Strategy**

The NDS Acquisition Strategy is to develop, test, troubleshoot, integrate and repair 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 U. S. NDS capability for the GPS Block IIR, IIF, and future generation satellites; funding is sent by Military Interdepartmental Purchase Request (MIPR) from DoD and Department of Energy (DoE) to Sandia and Los Alamos National Laboratories on existing DOE contracts.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys
(sensors)

(U) <u>Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract</u> <u>Method &</u> <u>Type</u>	<u>Performing</u> <u>Activity &</u> <u>Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Cost</u>	<u>FY 2005</u> <u>Award</u> <u>Date</u>	<u>FY 2006</u> <u>Cost</u>	<u>FY 2006</u> <u>Award</u> <u>Date</u>	<u>FY 2007</u> <u>Cost</u>	<u>FY 2007</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>	<u>Target Value</u> <u>of Contract</u>
(U) <u>Product Development</u> ICADS and GNT	MIPR	Department of Energy; Sandia National Laboratory, Albuquerque NM	109.931	24.727	Dec-04	22.565	Dec-05	17.441	Nov-06	Continuing	TBD	
GNT: Intermetrics	CPFF		1.262	0.000		0.000		0.000		0.000	1.262	
SAIC (Intg/Grd Supt)	Time/Matls		5.219	0.000		0.000		0.000		0.000	5.219	
Combined GOSC/NAP: Lockheed Martin	FFP		6.166	0.000		0.000		0.000		0.000	6.166	
W-Sensor: SRI (Stanford Rsch Inst.)	CPFF		0.415	0.000		0.000		0.000		0.000	0.415	
On-orbit sensor testing	MIPR	Department of Energy; Los Alamos National Laboratory, Los Alamos NM, Sandia National Laboratory, Albuquerque NM	10.313	2.605	Nov-04	3.463	Dec-05	3.531	Nov-06	Continuing	TBD	
SABRS on SBIRS	MIPR	Department of Energy; Los Alamos National Laboratory, Los Alamos NM, Sandia National Laboratory, Albuquerque NM	0.000	0.000		0.000		31.550	Nov-06	Continuing	TBD	
Subtotal Product Development			133.306	27.332		26.028		52.522		Continuing	TBD	0.000
Remarks:												
(U) <u>Support</u> Mission Support	Various		7.274	3.965		2.327		3.728		Continuing	TBD	
Prog Contractual Spt.	Various		5.185	0.000		0.000		0.000		0.000	5.185	

Project 2808

R-1 Shopping List - Item No. 209-5 of 209-8

Exhibit R-3 (PE 0305913F)

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys
(sensors)

Technical Support	Various	11.464	3.339	3.852	3.970	Continuing	TBD	0.000
Subtotal Support		23.923	7.304	6.179	7.698	Continuing	TBD	0.000
Remarks:								
(U) <u>Test & Evaluation</u>								
17th TS, Schriever AFB CO	Various	0.300	0.055	Jan-05	0.059	Dec-05	0.061	Dec-06
Subtotal Test & Evaluation		0.300	0.055		0.059		0.061	
Remarks:								
(U) <u>Management</u>								
Subtotal Management		0.000	0.000		0.000		0.000	0.000
Remarks:								
(U) Total Cost		157.529	34.691		32.266		60.281	Continuing
								TBD
								0.000

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2006

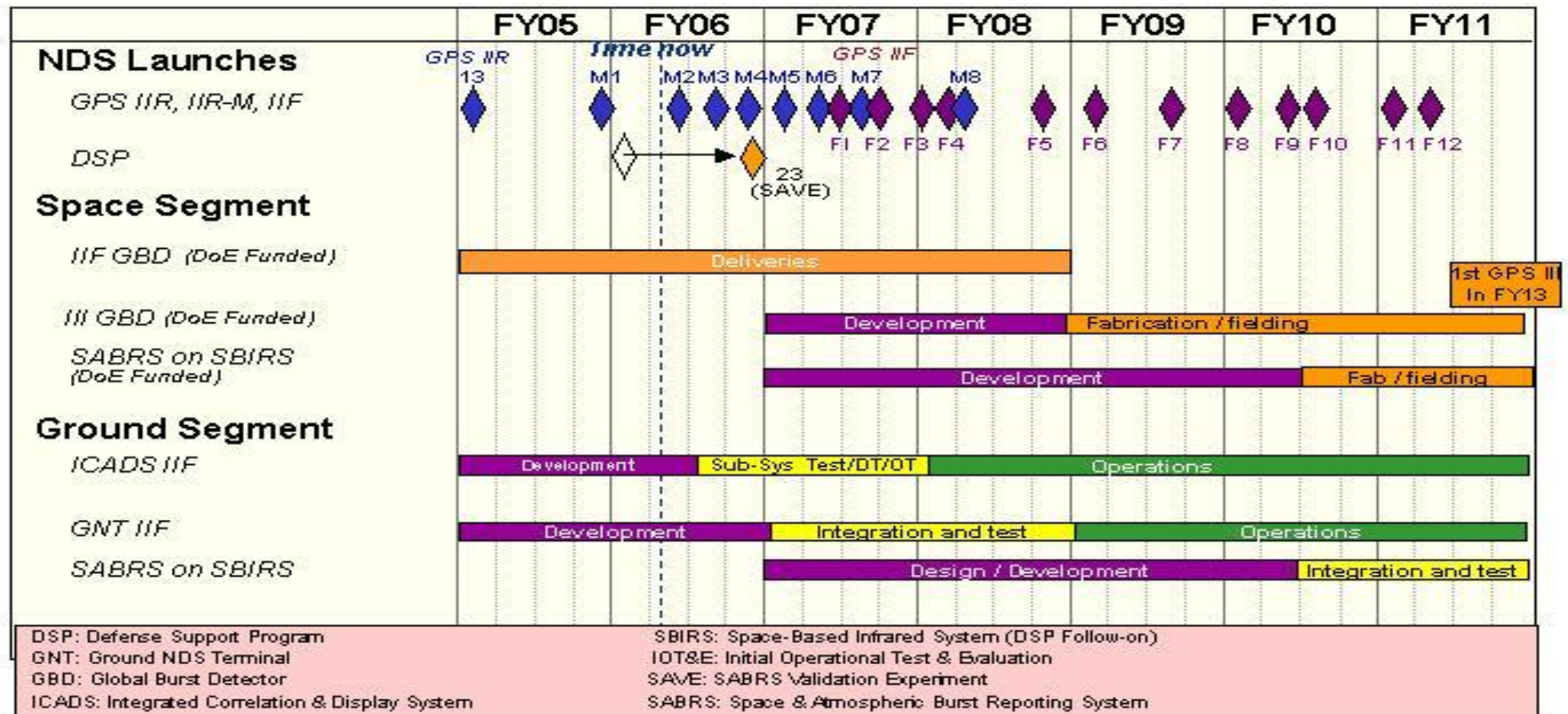
BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys
(sensors)

UNCLASSIFIED

Exhibit R-4a, RDT&E Schedule Detail

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305913F NUDET Detection System
(Space)

PROJECT NUMBER AND TITLE

2808 Nuc Detonation Det Sys
(sensors)(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) GPS IIF System Specification Review

3Q

(U) GPS IIF Phase Review

1Q

1Q

1Q

(U) GPS IIF Phase Review

3Q

3Q

3Q

(U) ICADS IIF Testing

2Q

1Q

(U) GNT IIF Testing

2Q

(U) SABRS on SBIRS Design/Development

1Q

*Note: GBD and EnRad are funded by DOE