PE NUMBER: 0305913F
PE TITLE: NUDET Detection System (Space)

Exhibit R-2, RDT&E Budget Item Justification

DATE: February 2005

BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0305913F NUDET Detection System (Space)

	Cost ($ in Millions)	FY 2004 Actual	FY 2005 Estimate	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	33.816	34.826	32.783	60.494	39.046	42.087	40.083	39.638	Continuing	TBD
2808	Nuc Detonation Det Sys (sensors)	33.816	34.826	32.783	60.494	39.046	42.087	40.083	39.638	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)

		FY 2004	FY 2005	FY 2006	FY 2007
(U)	Previous President's Budget	35.428	35.398	32.607	28.011
(U)	Current PBR/President's Budget	33.816	34.826	32.783	60.494
(U)	Total Adjustments	-1.612	-0.572		
(U)	Congressional Program Reductions		-0.572		
	Congressional Rescissions				
	Congressional Increases				
	Reprogrammings	-1.612			
	SBIR/STTR Transfer				

(U) Significant Program Changes:

Increased funding in FY07 for Space and Atmospheric Burst Reporting System (SABRS) on Space Based Infrared Systems (SBIRS) development.

Exhibit R-2a, RDT&E Project Justification

DATE: February 2005

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 2004 Actual	FY 2005 Estimate	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)	33.816	34.826	32.783	60.494	39.046	42.087	40.083	39.638	Continuing	TBD
	Quantity of RDT&E Articles	0	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)	FY 2004	FY 2005	FY 2006	FY 2007
(U) Continue ICADS and GNT development	26.274	24.392	23.082	17.654
(U) Continue NDS sensor on-orbit qualification	2.494	3.050	3.463	3.531
(U) Continue Mission and Program support and system studies	1.409	3.625	2.386	3.789
(U) Continue Technical Support	3.639	3.759	3.852	3.970
(U) SABRS on SBIRS development	0.000	0.000	0.000	31.550
(U) Total Cost	33.816	34.826	32.783	60.494

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

		FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total Cost
(U)	AF RDT&E										
(U)	Other APPN										
(U)	Operations & Maintenance, (PE 0305913F, BA 1,	7.516	8.378	9.839	10.373	10.376	10.564	10.666	10.872	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification			DATE: February 2005
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)	Operating Forces) Other Procurement, (PE 0305913F, BA 3 - Electronics and Telecom Equipment, P-63)	10.706	7.525	9.396	13.450	16.449	27.802	21.924	10.527	Continuing	TBD
(U)	Missile Procurement, (PE 0305913F, BA 5 - Space & Other support, P-23)	0.000	0.000	0.000	0.000	0.000	1.229	3.494	4.244	Continuing	TBD
(U)	Related RDT&E:										
(U)	PE 0305165F, NAVSTAR GPS (Space/Ground Segment)										
(U)	PE 0305911F, Defense Support Program										

(U) D. Acquisition Strategy

The NDS Acquisition Strategy is to develop and procure components 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.

Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2005**

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) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 Award Date	FY 2006 Cost	FY 2006 Award Date	FY 2007 Cost	FY 2007 Award Date	Cost to Complete	Total Cost	Target Value of Contract
(U) Product Development														
ICADS and GNT	MIPR	Department of Energy; Sandia National Laboratory, Albuquerque NM	83.657	26.274	Nov-03	24.392	Dec-04	23.082	Nov-05	17.654	Nov-06	Continuing	TBD	
GNT: Intermetrics	CPFF		1.262	0.000		0.000		0.000		0.000		0.000	1.262	
SAIC (Intg/Grd Supt)	Time/Matls		4.787	0.000		0.000		0.000		0.000		0.000	4.787	
Combined GOSC/NAP: Lockheed Martin	FFP		6.166	0.000		0.000		0.000		0.000		0.000	6.166	
SAIC	Time/Matl		0.432	0.000		0.000		0.000		0.000		0.000	0.432	
W-Sensor: SRI (Stanford Rsch Inst.)	CPFF		0.415	0.000		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	7.819	2.494	Oct-03	3.050	Nov-04	3.463	Nov-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		0.000		31.550	Nov-06	Continuing	TBD	
Subtotal Product Development			104.538	28.768		27.442		26.545		52.735		Continuing	TBD	0.000
Remarks:														
(U) Support														
Mission Support	Various		5.922	1.352		3.570		2.327		3.728		Continuing	TBD	

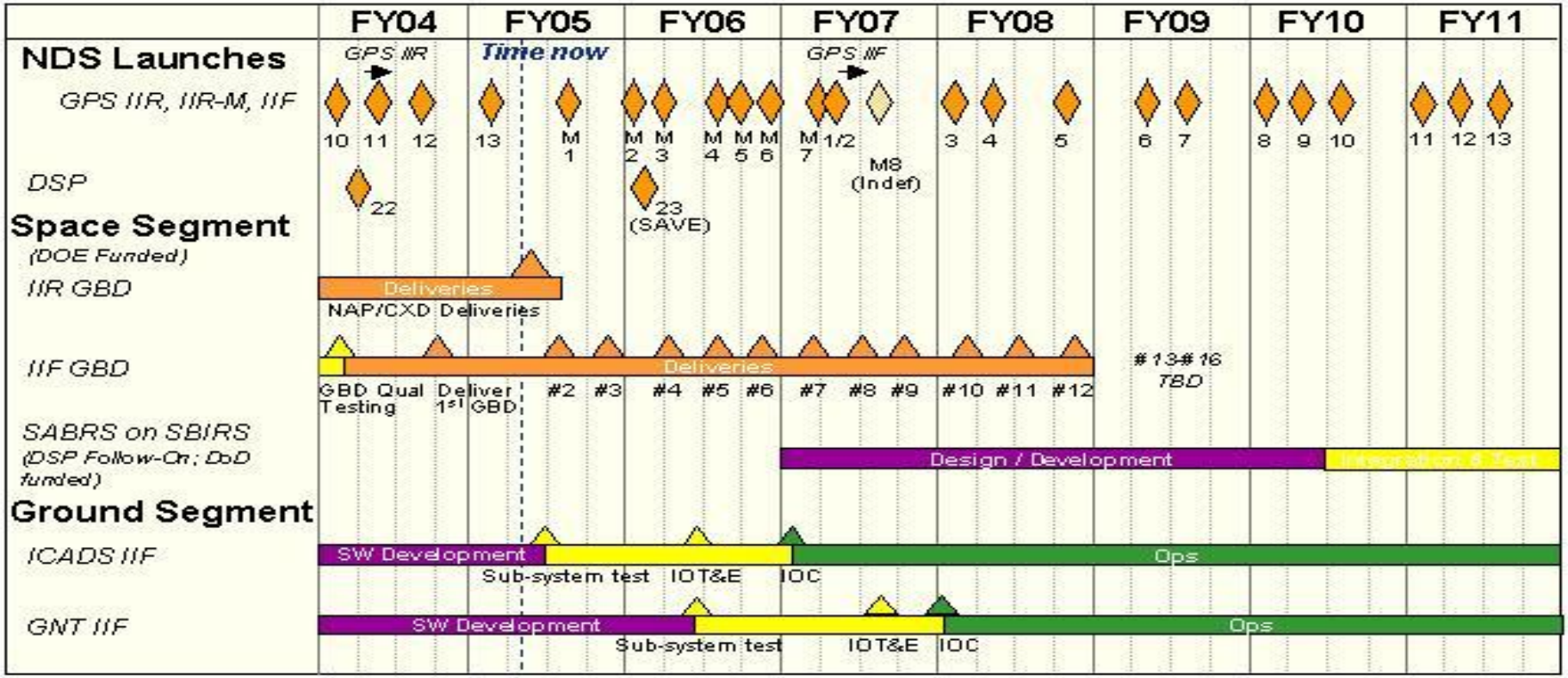
Exhibit R-3, RDT&E Project Cost Analysis

DATE: **February 2005**

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
07 Operational System Development	**0305913F NUDET Detection System (Space)**	**2808 Nuc Detonation Det Sys (sensors)**

	Prog Contractual Spt.	Various	5.185	0.000		0.000		0.000		0.000		0.000	5.185	
	Technical Support	Various	7.825	3.639		3.759		3.852		3.970		Continuing	TBD	
	Subtotal Support		18.932	4.991		7.329		6.179		7.698		Continuing	TBD	0.000
	Remarks:													
(U)	Test & Evaluation													
	17th TS, Schriever AFB CO	Various	0.243	0.057	Mar-04	0.055	Jan-05	0.059	Dec-05	0.061	Dec-06	Continuing	TBD	
	Subtotal Test & Evaluation		0.243	0.057		0.055		0.059		0.061		Continuing	TBD	0.000
	Remarks:													
(U)	Management													
													0.000	
	Subtotal Management		0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
	Remarks:													
(U)	Total Cost		123.713	33.816		34.826		32.783		60.494		Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2005
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)**



CXD: Combined X-Ray Dosimeter
DSP: Defense Support Program
GBD: Global Burst Detector
GNT: Ground NDS Terminal
ICADS: Integrated Correlation & Display System
IOC: Initial Operational Capability
IOT&E: Initial Operational Test & Evaluation
SAVE: Space & Atmospheric Burst Reporting System (SABRS) Validation Experiment

Exhibit R-4a, RDT&E Schedule Detail

DATE: February 2005

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
07 Operational System Development	0305913F NUDET Detection System (Space)	2808 Nuc Detonation Det Sys (sensors)

(U) Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007
(U) GPS IIF System Specification Review		3Q		
(U) Space & Atmospheric Burst Reporting System (SABRS) Validation Experiment (SAVE) DSP Qual unit delivery	2Q			
(U) Enhanced Radiometer (EnRad)* launch	3Q			
(U) IIF-1 Global Burst Detector (GBD)* delivery	4Q			
(U) GPS IIF Phase Review	1Q	1Q	1Q	1Q
(U) GPS IIF Phase Review	3Q	3Q	3Q	3Q
(U) ICADS IIF Testing		2Q		
(U) GNT IIF Testing			2Q	
(U) SABRS on SBIRS Design/Development				1Q

*Note: GBD and EnRad are funded by DOE