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

Exhibit R-2, RDT&E Budget Item Justification

DATE: February 2004

BUDGET ACTIVITY: 07 Operational System Development

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

Cost ($ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	20.754	35.428	35.398	32.607	28.011	28.939	35.090	Continuing	TBD
2808 Nuc Detonation Det Sys (sensors)	20.754	35.428	35.398	32.607	28.011	28.939	35.090	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, and Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays). 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, and NDS analysis payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. NAP improves existing NDS capability and will be 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 the first 12 Block IIF satellites with ground segment development remaining in the NDS PE.

This program is in Budget Activity 7 - Operational System Development because it is a post Milestone III program.

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

		FY 2003	FY 2004	FY 2005
(U)	Previous President's Budget	20.865	35.834	35.491
(U)	Current PBR/President's Budget	20.754	35.428	35.398
(U)	Total Adjustments	-0.111	-0.406	
(U)	Congressional Program Reductions		-0.406	
	Congressional Rescissions			
	Congressional Increases			
	Reprogrammings			
	SBIR/STTR Transfer	-0.111		
(U)	Significant Program Changes:			

Exhibit R-2a, RDT&E Project Justification			DATE: February 2004
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 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
2808 Nuc Detonation Det Sys (sensors)	20.754	35.428	35.398	32.607	28.011	28.939	35.090	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, and Defense Support Program (DSP) satellites (optical, x-rays, and neutron and gamma rays). 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, and NDS analysis payload (NAP). ICADS provides a fixed ground receiving station. GNT provides a survivable ground receiving station. NAP improves existing NDS capability and will be 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 the first 12 Block IIF satellites with ground segment development remaining in the NDS PE.

This program is in Budget Activity 7 - Operational System Development because it is a post Milestone III program.

(U) B. Accomplishments/Planned Program ($ in Millions)	FY 2003	FY 2004	FY 2005
(U) Accomplishments/Planned Program			
(U) Continue ICADS and GNT development	15.072	27.292	26.866
(U) Continue NDS sensor on-orbit qualification	1.189	2.604	2.642
(U) Continue Mission and Program support and system studies	1.100	1.860	2.131
(U) Continue Technical Support	3.393	3.672	3.759
(U) Total Cost	20.754	35.428	35.398

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

	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
(U) AF RDT&E									
(U) Other APPN									
(U) Operations & Maintenance, (PE	8.666	8.055	8.820	9.692	10.524	10.376	10.588	Continuing	TBD

Exhibit R-2a, RDT&E Project Justification		DATE: February 2004
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)	0305913F, BA 1, Operating Forces Other Procurement, (PE 0305913F, BA 3 - Electronics and Telecom Equipment, P-63)	7.793	10.706	7.554	9.334	12.304	15.392	26.567	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 2004

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 2003 Cost	FY 2003 Cost	FY 2003 Award Date	FY 2004 Cost	FY 2004 Award Date	FY 2005 Cost	FY 2005 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	68.672	14.985	Dec-02	27.292	Dec-03	26.866	Dec-04	Continuing	TBD	
GNT: Intermetrics	CPFF		1.262							0.000	1.262	
SAIC (Intg/Grd Supt)	Time/Matls		4.787							0.000	4.787	
Combined GOSC/NAP: Lockheed Martin	FFP		6.166							0.000	6.166	
SAIC	Time/Matl		0.432							0.000	0.432	
W-Sensor: SRI (Stanford Rsch Inst.)	CPFF		0.415							0.000	0.415	
On-orbit sensor testing	MIPR	Department of Energy; Los Alamos National Laboratory, Los Alamos NM, Sandia National Laboratory, Albuquerque NM	6.630	1.189	Dec-02	2.604	Dec-03	2.642	Dec-04	Continuing	TBD	
N/A											0.000	
Subtotal Product Development			88.364	16.174		29.896		29.508		Continuing	TBD	0.000
Remarks:												
(U) Support												
Mission Support	Various		4.822	1.100		1.789		2.046		Continuing	TBD	
Prog Contractual Spt.	Various		5.185							0.000	5.185	
Technical Support	Various		4.432	3.393		3.672		3.759		Continuing	TBD	
N/A											0.000	
Subtotal Support			14.439	4.493		5.461		5.805		Continuing	TBD	0.000
Remarks:												
(U) Test & Evaluation												
17th TS, Schriever AFB CO	Various		0.156	0.087		0.071		0.085		Continuing	TBD	
N/A											0.000	

Exhibit R-3, RDT&E Project Cost Analysis			DATE: February 2004				
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)				
Subtotal Test & Evaluation	0.156	0.087	0.071	0.085	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
Remarks:							
(U) Total Cost	102.959	20.754	35.428	35.398	Continuing	TBD	0.000

Exhibit R-4, RDT&E Schedule Profile		DATE February 2004
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)

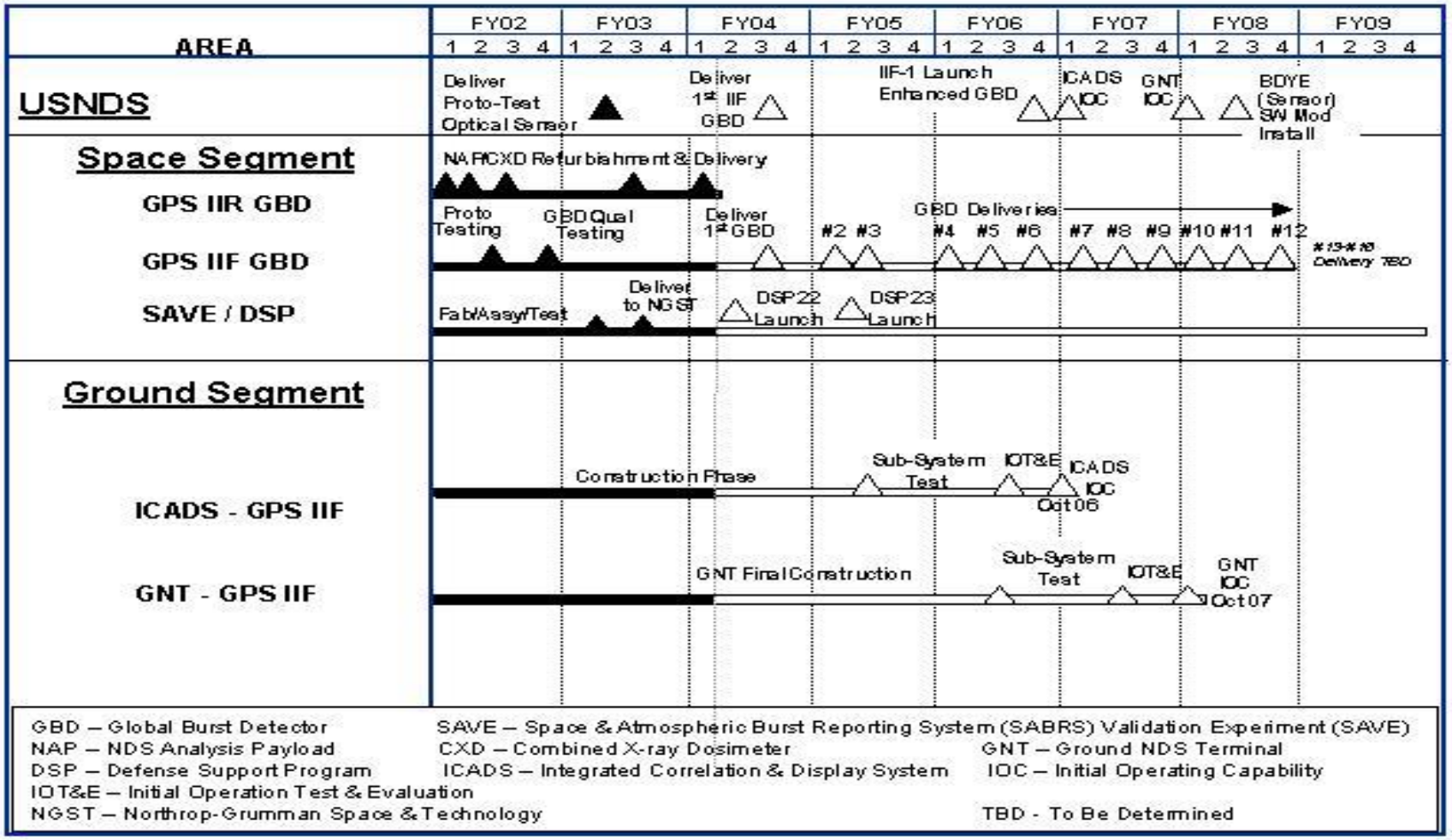

Exhibit R-4a, RDT&E Schedule Detail		DATE February 2004
BUDGET ACTIVITY **07 Operational System Development**	PE NUMBER AND TITLE **0305913F NUDET Detection System (Space)**	PROJECT NUMBER AND TITLE **2808 Nuc Detonation Det Sys (sensors)**

(U) **Schedule Profile**	FY 2003	FY 2004	FY 2005
(U) GPS IIF Use Case Model Review	2Q		
(U) GPS IIF System Specification Review	1Q		3Q
(U) JROC ORD approval	4Q		
(U) Space & Atmospheric Burst Reporting System (SABRS) Validation Experiment (SAVE) DSP Qual unit delivery		2Q	
(U) IIF-1 Global Burst Detector (GBD)* delivery		3Q	
(U) ICADS IIF Hardware Install			3Q
(U) Enhanced Radiometer (EnRad)* launch		4Q	
(U) GPS IIF Phase Review	1Q	1Q	1Q
(U) GPS IIF Phase Review	3Q	3Q	3Q

* GBD and EnRad are funded by DOE