

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1999
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BUDGET ACTIVITY 7 - Operational System Development	PE NUMBER AND TITLE 0305913F Nudet Detection System	PROJECT 2808
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COST (\$ In Thousands)	FY 1998 Actual	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
2808 Nuc Detonation Det Sys (Sensors)	12,878	13,050	14,430	17,241	14,369	16,515	21,702	21,085	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

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 AFSPC (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 on the Global Positioning System (GPS) 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, 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 5 - 13. DOD also funds the development of the EMP sensor for the Block IIR. Additional funding is provided by a separate, classified PE that funds development of the version of the EMP sensor which will be integrated on the Block IIF beginning with Space Vehicle 7. The EMP sensor observes endoatmospheric events and provides highly accurate location and characterization. It supports Comprehensive Test Ban Treaty (CTBT) monitoring.

(U) FY 1998 (\$ in Thousands):

- (U) \$ 8,923 Continued ICADS and GNT development
- (U) \$ 1,094 Continued NDS sensor on-orbit qualification
- (U) \$ 2,533 NDS/NAP (NDS Analysis Package) program integration
- (U) \$ 255 Continued mission support requirements
- (U) \$ 73 Space Long Range Planning
- (U) \$ 12,878 Total

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<p>(U) <u>FY 1999 (\$ in Thousands):</u></p> <ul style="list-style-type: none">- (U) \$ 10,289 Continue ICADS and GNT development- (U) \$ 1,054 Continue NDS sensor on-orbit qualification- (U) \$ 816 NDS/NAP (NDS Analysis Package) program integration- (U) \$ 615 Continue mission support requirements- (U) \$ 100 Space Long Range Planning- (U) \$ 176 Identified as a source for SBIR- (U) \$ 13,050 Total <p>(U) <u>FY 2000 (\$ in Thousands):</u></p> <ul style="list-style-type: none">- (U) \$ 12,685 Continue ICADS and GNT development- (U) \$ 1,023 Continue NDS sensor on-orbit qualification- (U) \$ 722 Continue mission support requirements- (U) \$ 14,430 Total <p>(U) <u>FY 2001 (\$ in Thousands):</u></p> <ul style="list-style-type: none">- (U) \$ 15,479 Continue ICADS and GNT development- (U) \$ 1,034 Continue NDS sensor on-orbit qualification- (U) \$ 728 Continue mission support requirements- (U) \$ 17,241 Total <p>(U) B. <u>Budget Activity Justification:</u></p> <p>This program is in Budget Activity 7 - Operational System Development because it is a post-Milestone III program.</p>		
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BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
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(U) C. Program Change Summary (\$ in Thousands)											
		<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total</u>					
						<u>Cost</u>					
(U) Previous President's Budget (FY 1999 PB)		13,360	13,314	14,352	13,342	Continuing					
(U) Appropriated Value		14,145	13,314								
(U) Adjustments to Appropriated Value											
a. Cong Gen Reductions		-469	-264								
b. SBIR		-317									
c. Omnibus or Other Above Threshold Reprogram		-481									
d. Below Threshold Reprogramming											
e. Rescission											
(U) Adjustments to Budget Years Since FY 1999 PB				78	3,899						
(U) Current Budget Submit/FY 2000 PB		12,878	13,050	14,430	17,241	Continuing					
(U) Significant Program Changes: \$176 identified as a source for SBIR in FY 1999. Increased funding in FY2000/FY 2001 funds ICADS and GNT efforts.											
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>To</u>	<u>Total</u>
										<u>Compl</u>	<u>Cost</u>
(U) Operations & Maintenance, (PE 0305913F, BA 1, Operating Forces		5,067	5,348	7,586	8,108	9,343	8,702	8,437	9,417	Cont	Cont
(U) Missile Procurement, (PE 0305913F, BA 45 - Space and Other Support, P-22)		954	2,811	1,575	1,491	1,522	1,556	1,590	1,625	Cont	Cont
(U) Other Procurement, (PE 0305913F, BA 63 - Electronics and Telecom Equipment, P-64)		7,792	1,275	3,490	2,700	8,542	8,065	12,844	12,084	Cont	Cont
Related RDT&E:											
(U) PE 305165F, NAVSTAR GPS (Space/Ground Segment)											
(U) PE 604480F, GPS Block IIF											
(U) PE 305911F, Defense Support Program											
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(U) E. Acquisition Strategy:

The NDS Acquisition Strategy is to develop and procure components to sustain the U. S. NDS capability for the GPS Block IIR and IIF 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 an existing contract vehicle.

(U) F. Schedule Profile

	<u>FY 1998</u>				<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
(U) ICADS/GNT Milestones & Program Events																
(U) IIF Use Case Model Overview						X										
(U) IIF System Specification Review			*		*			X								
(U) IIF System specification Configuration Control Board (CCB)						X										
(U) IIF Phase Review				*	*		X		X		X		X		X	
(U) IIR Acceptance Test (AT)			*													
(U) IIR Operational Acceptance			*													
(U) IIR Y2K Testing			*		*											
(U) IIR O&M (S/W Modifications)			*			X	X	X	X	X	X	X	X	X	X	X
(U) IIR Move to SBIRS Facility				*			X		X							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE February 1999	
BUDGET ACTIVITY 7 - Operational System Development					PE NUMBER AND TITLE 0305913F Nudet Detection System					PROJECT 2808	
(U) A. <u>Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>			
(U) ICADS and GNT Development					8,923	10,289	12,685	15,479			
(U) NDS Sensor On-orbit Qualification					1,094	1,054	1,023	1,034			
(U) NDS/NAP Program Integration					2,533	816	0	0			
(U) Mission Support					255	615	722	728			
(U) Space Long Range Planning					73	100					
(U) Identified as a source for SBIR						176					
(U) Total					12,878	13,050	14,430	17,241			
(U) B. <u>Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
Performing Organizations:											
Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 1998	Budget FY 1998	Budget FY 1999	Budget FY 2000	Budget FY 2001	Budget to Complete	Total Program
Identified as a source for SBIR							176				176
<u>Product Development Organizations</u>											
ICADS:											
Sandia National Labs	MIPR*	Jan 96	Cont	Cont	26,229	6,094	9,166	11,139	13,900	Cont	Cont
GNT:											
Intermetrics	CPFF	Dec 93	1,262	1,262	1,262	0	0	0	0	0	1,262
SNL	MIPR*	Jan 96	Cont	Cont	10,244	1,629	0	0	0	0	11,873
SAIC (Intg/Grd Supt)	Time/Matls	Dec 95	Cont	Cont	3,094	1,200	1,123	1,546	1,579	Cont	Cont
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Combined GOSC/NAP (GPS Operational Support Contract/NDS Analysis Payload)											
Lockheed Martin	FFP	Oct 97	3,633	3,633	3,633	2,533	816	0	0	0	6,982
SNL	MIPR*	Oct 97	Cont	Cont	200	0	0	0	0	0	200
SAIC	Time/Matls	Dec 97	432	432	432	0	0	0	0	0	432
* Military Interdepartmental Purchase Request											
W-Sensor Support											
SRI (Stanford Rsch Inst.)	CPFF	Aug 94	415	415	415	0	0	0	0	0	415
SNL	MIPR	Oct 94	399	399	399	0	0	0	0	0	399
Los Alamos Natl Lab	MIPR	Jan 96	Cont	Cont	2,983	1,094	1,054	1,023	1,034	Cont	Cont
Mission Support/Management Organizations											
Mission Support	Multiple	N/A	Cont	Cont	3,319	328	715	722	728	Cont	Cont
Prog Contractual Spt.	Multiple	1,534	1,534	1,534	1,534	0	0	0	0	0	1,534
Test and Evaluation Organizations											
Hill AFB Utah			9	9	9	0	0	0	0	0	9
Identified as a source for SBIR											
Subtotal Product Development					48,891	12,550	12,159	13,708	16,513	Cont	Cont
Subtotal Support and Management					4,853	328	715	722	728	Cont	Cont
Subtotal Test and Evaluation					9	0	0	0	0	0	9
Total Project					53,753	12,878	13,050	14,430	17,241	Cont	Cont