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Department of Defense FY 1999 Amended Budget Estimates

February 1998

DTIC QUALITY INSPECTED

RESEARCH, DEVELOPMENT, TEST AND EVALUATION, DEFENSE-WIDE

Volume 4 - All Other Agencies

DIRECTOR, TEST AND EVALUATION, DEFENSE

DIRECTOR, OPERATIONAL TEST AND EVALUATION, DEFENSE

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Director, Test and Evaluation, Defense ..... Volume 4

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Defensewide
FY 1999 RDT&E Program — Exhibit R-1

Summary — Date: FEB 1998

	Thousands of Dollars		
	FY 1997	FY 1998	FY 1999
Summary Recap of Defensewide			
Special Operations Command	141,631	152,886	155,903
Chemical and Biological Defense Program	301,792	344,722	336,365
National Imagery And Mapping Agency			
Def Threat Red & Treaty Compln Agency			360,890
Ballistic Missile Defense Organization	3,360,278	3,281,730	3,178,940
Office of Secretary/Defense	1,569,611	1,588,611	1,407,556
Defense Advanced Research Projects Agcy	2,069,971	2,040,819	2,039,722
National Security Agency			
Defense Special Weapons Agency	214,511	284,550	
Defense Support Project Office	78,039	50,804	40,504
Joint Chiefs of Staff	38,520	53,976	69,495
Defense Information Systems Agency	62,668	52,934	128,042
Defense Intelligence Agency			
Defense Logistics Agency	88,619	155,959	63,277
Defense Security Assistance Agency			14,360
Undistributed	-38,000		
Defense Security Service	411	406	418
Total Research Development Test & Eval Defwide	9,312,589	9,496,233	9,314,665

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CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM

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Chemical and Biological Defense Program
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
6	0601384BP	Chemical and Biological Defense Program	1	28,374	26,336	25,282	U
		Basic Research		28,374	26,336	25,282	
14	0602384BP	Chemical and Biological Defense Program	2	70,829	72,181	57,683	U
		Applied Research		70,829	72,181	57,683	
32	0603384BP	Chemical and Biological Defense Program	3	59,408	48,349	42,762	U
		Advanced Technology Development		59,408	48,349	42,762	
83	0603884BP	Chemical and Biological Defense Program - Dem/Val	4	45,133	53,413	60,404	U
		Demonstration and Validation		45,133	53,413	60,404	
91	0604384BP	Chemical and Biological Defense Program - EMD	5	78,709	126,302	125,312	U
		Engineering and Manufacturing Development		78,709	126,302	125,312	
111	0605384BP	Chemical and Biological Defense Program	6	19,339	18,141	24,922	U
		RDT&E Management Support		19,339	18,141	24,922	
Total		Chemical and Biological Defense Program		301,792	344,722	336,365	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 1 - Basic Research

PE NUMBER AND TITLE: 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	28374	26336	25282	26054	26531	28180	28156	Continuing	Continuing
CB1 CHEMICAL/BIOLOGICAL DEFENSE (NON-MEDICAL)	7792	2251	2382	2485	2593	3748	3427	Continuing	Continuing
TB1 MEDICAL BIOLOGICAL DEFENSE	13353	14279	14866	15302	15543	15863	16056	Continuing	Continuing
TC1 MEDICAL CHEMICAL DEFENSE	7229	9806	8034	8267	8395	8569	8673	Continuing	Continuing

Mission Description and Budget Item Justification: This program element funds the Joint Service core research program for chemical and biological (CB) defense. The basic research program aims to improve the operational performance of present and future DoD components by expanding knowledge in militarily relevant fields for CB Defense. Moreover, basic research supports a joint force concept of a lethal, integrated, supportable, highly mobile force with enhanced performance by the individual soldier, sailor, airman or marine. Specifically, the program promotes theoretical and experimental research in the chemical, biological and medical sciences. Research areas are determined and prioritized in order to meet joint service needs as stated in mission area analyses and joint operations requirements, and to take advantage of scientific opportunities. Basic research is executed by academia, including Historically Black Colleges and Universities and Minority Institutions (HBCU/MIs), industry, and government research laboratories. Other programs include interdisciplinary research performed under the University Research Initiative (URI) program, and the In-House Laboratory Independent Research program. Funds directed to these laboratories and research organizations capitalize on scientific talent, specialized facilities and technological breakthroughs.

The work in this program element is consistent with the Joint Service Research Development and Acquisition (RDA) Plan. Management of funding resources leads to expeditious transition of the resulting knowledge and technology to the applied research (PE 0602384BP) and advanced technology development (PE 0603384BP) activities. This project also covers the conduct of basic research efforts in the areas of real-time sensing and immediate biological countermeasures. The projects in this PE include basic research efforts directed toward providing fundamental knowledge for the solution of military problems and therefore are correctly placed in Budget Activity 1.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 1 - Basic Research

PE NUMBER AND TITLE: 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)

PROJECT: CB1

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CB1 CHEMICAL/BIOLOGICAL DEFENSE (NON-MEDICAL)	7792	2251	2382	2485	2593	3748	3427	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project CB1 CHEMICAL/BIOLOGICAL DEFENSE (NON-MEDICAL): This project funds basic research in chemistry, physics, mathematics and life sciences, fundamental information in support of: new and improved detection systems for biological agents and toxins; new and improved detection systems for chemical threat agents; advanced concepts in individual and collective protection, new concepts in decontamination and information on the chemistry and toxicology of threat agents and related compounds.

FY 1997 Accomplishments:

- 394 Aerosol Science: Continued investigation of optical properties of aerosol particles and mathematical solutions to the inversion problem leading to enormous simplification of the data reduction problem and making possible the remote imaging of bio-aerosols in near real time.
- 955 Chemistry and Toxicology: Began in-house evaluation of dendritic polymers which were prepared last year (functionalized with monoethanolamine). Completed initial toxicology evaluation of VX using human liver cells and the cytosensor. Began screen of a new set of dehyrohalogenases as an approach to a mild HD decontaminant and began study of catalytic hydrolysis of VX at controlled pH.
- 650 Biosensors: Continued mass spectrometric study of biomarkers potentially useful for mass spectrometry based bio-agent detector. Made another down-selection of marker/sampling method combinations in preparation for a recommendaion next year. Began study of glycosylated calixarares as novel agent capture molecules.
- 1200 Completed the new start initiatives begun last year for identification of pathogens on the basis of antibiotic resistance and for determining the feasibility of targeting regulatory genes as a marker for virulence. Completed new approaches to generic toxins recognition. Demonstrated a model of the impact of various respirator components/design features on wearer performance in terms of battlefield capabilities.
- 4593 Developed prototype of single molecule/agent detection system; demonstrated feasibility in cell culture of programming transfected stem cells to produce and release gene products (e.g. vaccines or their analogs); established preliminary approach for stem cell surface or other receptors to detect specific pathogens or biological simulants (DARPA).

Total 7792

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 1 - Basic Research	PE NUMBER AND TITLE 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)
	PROJECT CB1

FY 1998 Planned Program:

•	601	Biosensors: Initiate work on generation of high affinity oligonucleotides to Bacillus anthracis from a large random oligonucleotide library. Begin project to create a microsensor chip on which is immobilized a polymer demonstrating thermally induced delayed fluorescence. Synthesize and purify antibody-dendrimer-tag conjugates to surrogate bio warfare agents. Design step-wise experiments for targeting multiple regulatory genes for microdetection.
•	753	Aerosol Science: Measure S34/S11 in UV region for Bacillus species. Design and test components of the improved scattering apparatus. Complete design and computer codes for a bio-aerosol 3-D imaging system based upon the inversion theory theorem completed last year.
•	269	Chemistry and Tox of Bioactive Compounds: Determine basal cytotoxicity of the test compounds as indicated by irreversible inhibition of cell metabolic rate. Prepare chemical agent simulant polymer imprints and target monomers; prepare imprinted silica and initiate binding studies. Isolate and identify the specific strain exhibiting the catalytic mustard degrading activity found during screening last year. Investigate the reaction mechanism, rate and products of the hydrolysis of pure T and HT at controlled pH; investigate the kinetics and mechanisms of VX hydrolysis at near neutral pH; investigate the reaction mechanism, rate and product distribution of the hydrolysis of HD and VX in monoethanolamine/water mixtures as a function of nucleophile, water concentration and temperature.
•	591	Analytical Chemistry: A comprehensive investigation of the potential of next-generation mass spectrometric approaches, including electrospray ionization (ESI) and matrix assisted laser desorption ionization (MALDI), for application as chemotaxonomic methods for the detection and identification of agents of biological origin. Biomarkers leading to discrimination and identification will be identified, sample preparation techniques will be developed and analyses will be conducted using both ionization techniques in order to identify combinations which would be most likely to be capable of development into fieldable devices.
•	37	SBIR/STTR
Total	2251	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 1 - Basic Research	PE NUMBER AND TITLE 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)
	PROJECT CB1

FY 1999 Planned Program:

- 683 Biosensors: Begin sequencing of high affinity oligonucleotides identified last year and expand target bioagents. Synthesize diazoluminomelanin/oligomer complexes and begin integration with epoxy chips. Design capillary electrophoretic detection system based on dendrimer tags synthesized last year. Design deoxyribonubleic acid (DNA) probes to regulatory genes identified last year.
- 801 Aerosol Science: Assemble and test the improved scattering apparatus and begin rapid measurement of polarized light scattering from vegetative bacteria. Complete construction and demonstration of the bio-aerosol 3-D imaging system; transition the work to the core exploratory program.
- 291 Chemistry and Toxicology of Bioactive Compounds: Determine specific or hepatocyte dependent cytotoxicity of the test compounds. Establish selectivity of the polymer imprint system developed last year; develop analytical procedures and initiate protective overcoating studies. Complete kinetic characterization of HD degrading system isolated last year; begin cloning and high level expression experiments. Continue the investigation of the reaction mechanism, rate and products of the hydrolysis of pure T and HT at controlled pH; measure activation energies for the hydrolysis of VX at near neutral pH over a wide temperature range; complete the investigation of the reaction mechanism, rate and product distribution for the hydrolysis of HD and VX in monoethanolamine/water mixtures and transition the work to exploratory development as it addresses new decontaminant development requirements.
- 607 Analytical Chemistry: Continue a comprehensive investigation of the potential of next-generation mass spectrometric approaches, including ESI and MALDI, for application as chemotaxonomic methods for the detection and identification of agents of biological origin. Biomarkers leading to discrimination and identification will be identified, sample preparation techniques will be developed and analyses will be conducted using both ionization techniques in order to identify combinations which would be most likely to be capable of development into fieldable devices.

Total 2382

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 1 - Basic Research

PE NUMBER AND TITLE: 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)

PROJECT: CB1

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	8051	2301	2450
Appropriated Value	8051	2227	
Adjustments to Appropriated Value	-259	24	
FY 1999 President's Budget	7792	2251	2382

Change Summary Explanation:

Funding:

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 1 - Basic Research

PE NUMBER AND TITLE: 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)

PROJECT: TB1

COST *(In Thousands)*	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
TB1 MEDICAL BIOLOGICAL DEFENSE	13353	14279	14866	15302	15543	15863	16056	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project TB1 MEDICAL BIOLOGICAL DEFENSE: This project funds basic research on the development of vaccines and drugs to provide an effective medical defense against validated biological threat agents including bacteria, toxins, viruses and other agents of biological origin. Also, by employing biotechnology, this project funds basic research to rapidly identify, diagnose, prevent, and treat disease due to exposure to biological threat agents.

FY 1997 Accomplishments:

- 2154 Evaluated additional recombinant vaccine constructs, performed antigenic mapping, and conducted computer modeling studies for clostridium botulinum and clostridium perfringens toxins.
- 1933 Initiated studies to identify and counteract potential genetically-engineered delivered threats and developed further in vitro models for validated agents.
- 1800 Defined bacterial gene products that stimulate protective immune responses to define bio-engineered vaccine candidates for plague and glanders.
- 1274 Identified key antigenic and genetic components for development of alternative vaccine candidates for brucella.
- 2126 Studied pathogenic mechanisms of staphylococcus enterotoxin B.
- 1089 Evaluated nucleic-acid based ligands for ricin toxin binding and further characterized cellular pathogenesis of ricin toxin.
- 1527 Identified and characterized molecular constructs for vaccine approaches and immunodiagnostic reagents for alphaviruses and filoviruses.
- 1450 Studied pathogenic mechanisms of physiologically active compounds and peptide ionophores.

Total 13353

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 1 - Basic Research	PE NUMBER AND TITLE 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)
	PROJECT TB1

FY 1998 Planned Program:

•	1194	Conclude evaluation of potential adjuvants for use with Plague vaccine candidate.
•	1279	Identify, clone and sequence virulence genes/plasmids for brucella diagnostics and vaccines.
•	1846	Identify, clone and sequence virulence genes/plasmids for diagnostics for glanders and typhus.
•	1243	Screen pharmacologic agents to evaluate for treatment of orthopox and filovirus infections.
•	2328	Perform computer simulation of structure/activity relationships for toxins of clostridium perfringens and other toxins.
•	1560	Initiate entire genome sequencing of selected high priority bacterial and viral agents for screening of genetically engineered microbes.
•	2119	Construct genetic libraries of staphylococcal enterotoxin producing genes and develop synthetic peptides, monoclonal antibodies and diagnostic probes.
•	1023	Design computer and in vitro model systems for design of post-exposure therapeutics for ricin.
•	1448	Continue sequence evaluation of enzootic strains of equine encephalitis viruses for multivalent vaccine and perform epitope mapping of filovirus antigens.
•	239	SBIR/STTR
Total	14279	

FY 1999 Planned Program:

•	1450	Test adjuvants to enhance mucosal immunity to brucellae and evaluate expression system for multivalent Brucella vaccine.
•	2771	Evaluate expression systems for newly cloned glanders and typhus virulence factors.
•	3778	Identify modes of protection from filoviruses and orthopox viruses provided by pharmacological compounds.
•	2068	Continue full genome sequencing of biological threat agents and begin gene bank search for general virulence factor sequence information.
•	2382	Determine role of cellular enzymes in mechanism of action of Staphyloccocus enterotoxin induced shock and evaluate inhibitors of these mechanisms.
•	1139	Complete screening of potential drugs for post-exposure therapies against ricin using in vitro model system.
•	1278	Begin evaluation of potential antiviral compounds for filoviruses using in vitro models.
Total	14866	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 1 - Basic Research

PE NUMBER AND TITLE: 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)

PROJECT: TB1

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	13802	14756	15299
Appropriated Value	13802	14279	
Adjustments to Appropriated Value	-449		
FY 1999 President's Budget	13353	14279	14866

Change Summary Explanation:

Funding:

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 1 - Basic Research

PE NUMBER AND TITLE: 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)

PROJECT: TC1

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
TC1 MEDICAL CHEMICAL DEFENSE	7229	9806	8034	8267	8395	8569	8673	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project TC1 MEDICAL CHEMICAL DEFENSE: This project emphasizes understanding of the basic mechanisms of action of nerve, blister (vesicating), blood, and respiratory agents. Basic studies are performed to delineate mechanisms and site of action of identified and emerging chemical threats to generate required information for initial design and synthesis of medical countermeasures. In addition, these studies are further designed to maintain and extend a science base.

FY 1997 Accomplishments:

- 2258 Established several assays for quantification of deoxyribonucleic acid DNA repair activity; demonstrated effect of HD on a variety of protease substrates.
- 733 Used micro dialysis to determine relative potency of leading pharmaceutical entities blocking neurochemical changes in Nerve Agent Seizures (NAS).
- 2097 Characterized second generation enzyme molecules for detoxification of chemical agents and improved their specificity through the application of molecular modeling and biotechnology.
- 676 Developed in vitro and in vivo model systems to evaluate the possible effects of low dose or chronic exposures to chemical warfare (CW) agents.
- 1465 Used the weanling pig model to follow the course of pathology of HD and evaluate the candidate reactive topical skin protectant.

Total 7229

FY 1998 Planned Program:

- 4488 Elucidate immunological response to vesicants and screen analytic procedures useful for quantitating vesicant-induced inflammation.
- 417 Synthesize and screen butyrylcholinesterase altered by site directed mutations guided by computer assisted design.
- 1672 Explore mechanisms of action of aqueous wound decontaminant materials effective at neutralizing chemical warfare agents in wounds.
- 1672 Design and create protective active moieties for a reactive Topical Skin Protectant (TSP).
- 1393 Develop sensitive biomarkers of low dose exposure to CW agents.
- 164 SBIR/STTR

Total 9806

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 1 - Basic Research

PE NUMBER AND TITLE: 0601384BP CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)

PROJECT: TC1

FY 1999 Planned Program:

•	3724	Screen drugs from principle classes of interest for viable post-exposure therapy of blister agents.
•	538	Use crystal structure of human enzymes along with site directed mutagenesis to develop recombinant enzyme with catalytic function for nerve agent and resistance to aging by nerve agents, and evaluate novel drugs as anticonvulsants against nerve agents.
•	970	Evaluate novel temporary wound dressing or skin draft approaches as accelerators of healing for mustard induced wounds.
•	862	Synthesize catalytic reactive moieties for topical skin protectant.
•	1940	Characterize pharacokinetic parameters of low dose or chronic exposures to include possible long-live metabolites that may contribute to toxicity or aid in diagnosis.
Total	8034	

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	7472	8133	8269
Appropriated Value	7472	9806	
Adjustments to Appropriated Value	-243		
FY 1999 President's Budget	7229	9806	8034

Change Summary Explanation:

Funding: FY1998: Congressional adjustment of (+$2000) for medical chemical research for novel nerve agents antidotes and pretreatments and for other Congressional adjustments (-$327).

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 2 - Applied Research

PE NUMBER AND TITLE: 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)

COST (*In Thousands*)		FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	70829	72181	57683	59232	59962	65254	64749	Continuing	Continuing
CB2	CHEMICAL BIOLOGICAL DEFENSE	42643	48096	31587	33356	33671	38422	37589	Continuing	Continuing
SB2	SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)	5180	0	0	0	0	0	0	0	5180
TB2	MEDICAL BIOLOGICAL DEFENSE	10662	11103	12034	11911	12138	12387	12539	Continuing	Continuing
TC2	MEDICAL CHEMICAL DEFENSE	12344	12982	14062	13965	14153	14445	14621	Continuing	Continuing

Mission Description and Budget Item Justification: The use of weapons of mass destruction (WMD) in future conflicts is a steadily increasing threat. Funding under this PE sustains a robust defense which both reduces the danger of a chemical and/or biological (CB) attack and enables U.S. forces to survive, and continue operations in a CB environment. The medical program focuses on development of antidotes and drug treatments and on casualty diagnosis, decontamination and medical management. In the non-medical area, the emphasis is on continuing improvements in CB defense materiel, including contamination avoidance, decontamination, and protection systems. Maintaining state-of-the-art CB defensive systems is critical for force protection and CB weapons deterrence. This project also provides for conduct of applied research in the areas of real-time sensing and immediate biological countermeasures. The work in this program element is consistent with the Joint Service Research Development and Acquisition (RDA) Plan. Efforts under this PE transition to and provide risk reduction for Advanced Technology Development (PE 0603384BP), Demonstration/Validation (PE 0603884BP) and Engineering/Manufacturing Development (PE 0604384BP). This project includes non-system specific development directed toward specific military needs and therefore is appropriate to Budget Activity 2.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 2 - Applied Research

PE NUMBER AND TITLE: 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)

PROJECT: CB2

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CB2 CHEMICAL BIOLOGICAL DEFENSE	42643	48096	31587	33356	33671	38422	37589	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project CB2 CHEMICAL BIOLOGICAL DEFENSE: This project addresses the urgent need to provide all services with defensive materiel to protect individuals and groups from threat chemical-biological agents in the areas of: detection; identification and warning; contamination avoidance through reconnaissance; individual and collective protection and decontamination. It also provides for special investigations into CB defense technology to include CB threat agents, operational sciences, modeling, CB simulants, and nuclear, biological, chemical (NBC) survivability. This project focuses on horizontal integration of CB defensive technologies across the Joint Services. Project supplemented ($1M) in FY99 as a result of the DOD Quadrennial Defense Review (QDR) in the area of interior decontamination.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)	PROJECT CB2

FY 1997 Accomplishments:

- 450 Adv Lgtwgt Chem Prot, DTO: Transitioned candidate material to JSLIST P3I, and developed alternative selectively permeable membrane/fabric material candidate for lightweight CB clothing.
- 994 Respirator Filt. Tech, DTO: Selected best candidate filtration media and designed, fabricated, and evaluated baseline design models.
- 367 JWARN, DTO: Established a secure Internet Server to emulate a tactical network interface into hazard prediction model using stored and snythesized sensor data.
- 758 Adv Adsorb Prot Applic, DTO: Prepared over 30 novel noncombustible adsorbent materials (e.g. impregnated high silica zeolites) with pore structure and reactivities engineered to provide high levels of chemical warfare agent adsorption performance. Initiated work on layered adsorbent bed concepts incorporating activated carbon cloth to provide high levels of agent filtration performance from a reduced size protective mask filter.
- 2487 Chem Point Det, Non DTO: Continued efforts in developing new simulants and characterizations of new identified threats. Demonstrated 1 gm/m2 surface contamination detection and built a breadboard liquid surface detector. Initiated IPT working group for water monitor.
- 2798 Bio Early Warning, Non DTO: Continued development of small lightweight early warning biodetector using Ultraviolet Laser-induced Fluorescence (UVLIF). Continued UV database compilation. Explored multiple scattering and Mueller Matrix aerosol characterization techniques for advanced early warning concepts.
- 3262 C&B Study, Analy & Sim, Non DTO: Upgraded wargames and distributed interactive simulation (DIS) capabilities to include evaluation of virtual prototypes of Joint Service CB Defense equipment. Continued simulation and wargaming of chemical and biological attack profiles with distribution of vapor, liquid and solid tracking (VLSTRACK) version 2.0.
- 2617 Decon, Non DTO: Initiated studies on the use of supercritical fluid and ozone technologies for use in the decontamination of sensitive equipment and interiors; pursuing novel solution chemistry approaches for a general decontamination to replace DS2; assisting the user community in defining specialized requirements for decontamination at fixed facilities.
- 450 Laser Stand-off (S/0) Chem Det DTO: Conducted surface contamination study which demonstrated potential capabilities for a simplified algorithm. Conducted background characterization for enhanced data reduction in maritime and land based environments employing light detection and ranging (LIDAR) technology.
- 800 Decon, DTO: Developed enzymatic decontamination systems for G-agents. Identified other candidate (V-agent) enzymes to be incorporated into a multi-component system. Performed initial field trials and planned NATO demonstration of vehicular decontamination.
- 7281 Bio Point Det, Non DTO: Continued to develop and evaluate emerging bio point detection technologies and chemistries, and improve technologies and chemistries currently in-use. Demonstrated cutting edge bioanalysis techniques for biomaterials using mass spectrometry. Assessed and developed assays for simulant and bioagent antibodies for use by various biological detection development programs. Developed and demonstrated simplified "one-step chemistry" immunoassays for two biosensors. Demonstrated and evaluated rapid DNA analysis methods for various biomaterials on differing current and emerging sensors. Initiated 2nd generation biodetection technology for the Joint Chemical Biological Universal Detector (JCBUD) with efforts such as development of an automated, rapid, and miniature DNA detector. Actively investigated methods for rapid extraction of DNA from biomaterials. Explored airborne and shipboard bio point detection alternatives.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)	PROJECT CB2

FY 1997 Accomplishments (cont):

- 1786 Bio Genetic Tech, Non DTO: Employed genetic recombinatorial techniques to create novel biological recognition molecules for the detection and identification of biological agents. Designed and developed bacterial fermentation processes for scale-up production of recombinant antibodies.
- 2312 Ind Prot, Non DTO: Continued efforts focusing on advanced concept for final prototyping of the Joint Service General Purpose Mask (JSGPM). Conducted Milestone 0 IPR for the JSGPM, initiated development of the respiratory encumbrance model, developed and conducted preliminary charaterization of PVA/CD membranes, transitoned novel foam/fabric material to JSLIST P31, characterized polymers containing pore-forming materials, and investigated concepts for residual life indicator for CB clothing.
- 5062 Chem S/O, Non DTO: Laboratory demonstrated a breadboard liquid surface detector. Completed integration of a 9 pixel array for Chemical Imaging Sensor (CIS) and a full performance virtual system for demonstration of Safeguard prototype.
- 4787 Coll Prot, Non DTO: Conducted study on findings relative to industrial vapor filtration and assessment of Surface Acoustic Wave (SAW) sensors for filter residual life protection filters and regenerative filtration beds. Validated Pressure Swing Adsorption (PSA) design model for single-layer beds, initiated multi-layer PA bed modeling effort. Initiated an effort to test full scale NDI cleanable /regenerable High efficiency Particulate Arresting (HEPA) filters, and initiated a study to identify advanced materials and processes for improving HEPA filtration.
- 6432 Down selected technologies for miniature environmental bio air to fluid samplers and continue development; developed non-PCR, iso-thermal nuclei acid gene detection technology; developed analytical methods for chemotaxonomy of vegetative and spore bacteria and viruses; developed library and database for simulants to allow a tiny time-of-flight mass spectrometer to participate in field trials; completed database for operational systems for tiny time-of-flight mass spectrometer; developed airborne, vapor and aqueous sampler for tiny time-of-flight spectometer; developed power system, data acquisition and control including data telemetry electronics; defined experimental animal protocols and effectiveness criteria for the use of red blood cells to eliminate BW pathogens from circulation (DARPA).

Total 42643

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BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)	PROJECT CB2

FY 1998 Planned Program:

- 930 Laser Stand-off (S/O) Chem Det, DTO: Evaluate the feasibility of adding wind shear detection; begin the design of the brassboard for increased range and sensitivity.
- 2791 Joint Service Modeling and Simulation: Conduct modeling and simulation of fixed base operations.
- 744 Decon, DTO: Develop enzymatic decontamination systems for G-agents. Scale up process to production scale. Identify other candidate enzymes to be incorporated into a multi-component system. Identify effective compatible materials capable of decontaminating BW materials. Perform initial field trials and plan NATO demonstration of vehicular decontamination.
- 5516 Chem S/O, Non DTO: Demonstrate a breadboard liquid surface detector in laboratory. Development of novel algorithm for quantifying passive IR data.
- 4968 Bio Point Det, Non DTO: Continue an aggressive applied research program to develop and evaluate emerging bio point detection technologies and chemistries, and improve what is currently in-use. Demonstrate cutting edge bioanalysis techniques for biomaterials using mass spectrometry. Assess and develop assays for simulant and bioagent antibodies for use by various programs on current and emerging biodetectors. Develop and demonstrate simplified "one-step chemistry" immunoassays for two biosensors. Demonstrate and evaluate rapid DNA analysis methods for various biomaterials on differing current and emerging sensors. Initiate 2nd generation biodetection technology for the Joint Chemical Biological Universal Detector (JCBUD) with efforts such as development of an automated, rapid, and miniature DNA detector. Actively investigate methods for rapid extraction of DNA from biomaterials. Explore airborne and shipboard bio point detection alternatives.
- 2916 Ind Prot, Non DTO: Continue efforts focusing on advanced concept for final prototyping of Joint Service General Purpose Mask (JSGPM). Conduct Milestone 0 IPR for the JSGPM, initiate development of the respiratory encumbrance model, develop and conduct preliminary characterization of PVA/CD membranes, transition novel foam/fabric material to JSLIST P3I, characterize polymers containing pore-forming materials, and investigate concepts for residual life indicator for CB clothing.
- 418 Agent Impermeable Membrane, DTO: Characterize alternative selectively permeable membrane/fabric material and demonstrate the efficacy and durability of the material.
- 804 Respirator Filt Tech, DTO: Optimize prototype design and complete formal design verification testing.
- 651 JWARN, DTO: Identification of hazard prediction efforts and requirements for computational performance and shell program; initiate tradeoff analysis for cost versus NDI sensor link performance; characterize 10 NDI systems as candidates for down select for demonstration and tradeoff study.
- 958 Adv Adsorb Prot Applic, DTO: Conduct agent filtration performance evaluation of layered adsorbent beds to identify the most promising concept(s). Continue with engineering of physical properties (pore structure and surface characteristics) and chemical properties (surface chemistry and impregnants) of adsorbent materials applicable to noncombustible filters and regenerative filtration systems.
- 815 Chem Point Det, Non-DTO: Complete feasibility studies for technologies to detect contaminants in water and of novel concepts for meeting JCBUD requirements.

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BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)
	PROJECT CB2

FY 1998 Planned Program (cont):

•	2630	Bio Early Warning, Non DTO: Test, evaluate and transition small lightweight early warning biodetection system to advance technology development using UVLIF technology. Continue UV database compilation. Select advanced light scattering approach for improved selectivity and sampling.
•	1322	Bio Genetic Tech, Non DTO: Continue program in genetic technology to support future generation bio detection with a rapid agent specific detection capability.
•	3642	Core S&T, Non DTO: Upgrade wargames and distribute interactive simulation (DIS) capabilities to include evaluation of virtual prototypes of Joint Service CB defense equipment. Continue simulation and wargaming of chemical and biological attack profiles with distribution of vapor, liquid and solid tracking (VLSTRACK) version 2.0.
•	2111	Decon, Non DTO: Install and evaluate bench scale supercritical fluid extraction unit; initiate materials compatibility studies. Complete gas phase ozone study for interior decontamination and initiate solution studies. Continue solution decon studies and investigate an additional approach based on using dipolar-aprotic solvents. Evaluate effectiveness of existing and development decons against BW simulants. Sponsor technical workshop to address newly identified user requirements.
•	1100	Chemical Imaging Sensor, DTO: Demonstrate 9-pixel spectrometer at 30 Hz (offline process of data).
•	3999	Coll Prot, Non DTO: Conduct study on findings relative to industrial vapor filtration and assessment of Surface Acoustic Wave (SAW) sensors for filter residual life protection filters and regenerative filtration beds. Validate Pressure Swing Adsorption (PSA) design model for single-layer beds, initiate multi-layer PA bed modeling effort. Initiate an effort to test full scale NDI cleanable/regenerable High Efficiency Particulate Arresting (HEPA) filters, and initiate a study to identify advanced materials and processes for improving HEPA filtration.
•	3000	SAFEGUARD: Demonstrate the technology for airborne detection of gases for several Department of Defense high priority targets. The program will collect data from one or more open-air data collection experiments to simulate actual target signatures. Complete the construction of a second generation specialized line scanner and a second generation high speed Fourier Transform Spectrometer.
•	8000	Chemical sensor enhancements: Risk reduction efforts in detection of low levels of contamination, verification of contaminated surfaces for decontamination, feasibility of new technology (millimeter wave spectroscopy), evaluation of sampling systems for chemical aerosol threats, demonstrate a universal chemical ionization source for IMS/Mass spec detectors, and demonstrate hardware and software linkage components between detectors and C4I2 systems.
•	781	SBIR/STTR
Total	48096	

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BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)
	PROJECT CB2

FY 1999 Planned Program:

- 750 Laser S/O, Chem Det DTO: Initiate brassboard build for a multi-purpose detector.
- 500 Adv Lgtwgt Chem Prot, DTO: Combine advanced membranes with lightweight shell fabrics and novel closure systems into a concept lightweight CB duty uniform.
- 700 JWARN, DTO: Complete tradeoff analysis; parameters are cost target of $300 per unit, 57.6-kb continuous wireless, and 1-Mb continuous wired data transmission rates. Demonstrate using at least 2 different sensors and a minimum of 10 linkages.
- 1062 Adv Adsorb Prot Applic, DTO: Perform extensive characterization of the agent filtration performance of the layered adsorbed bed concept(s) identified as offering the greatest potential of providing high agent capacity and low pressure drop for the JSGPM filter. Continue optimization of the physical and chemical properties of candidate adsorbents for potential application to noncombustible filters and regenerative filtration systems.
- 600 Decon, DTO: Down select most promising V-agent enzymes. Begin evaluation of V-agent enzymes in foam-based and other decontamination systems.
- 2000 Chem Point Det Non-DTO: Select best technology and initiate breadboard design and fabrication for water monitor.
- 1100 Chem S/O Det Non-DTO: Demonstrate advanced breadboard and initiate brassboard design and fabrication for liquid surface detector.
- 6322 Bio Point Detection, Non DTO: Continue exploratory development efforts in new, automated biological detection concepts. Continue assay optimization efforts for both antibody-based and DNA probes. Select approach for 2nd generation generic bio detector. Select best alternative technologies for airborne and shipboard use utilizing information from Advanced Technology Demonstration (ATD).
- 2450 Bio Early Warning Detection, Non DTO: Upgrade small early warning UV detector based on ATD test and conduct retest. Complete UV data base. Initiate applied research program on light scattering detector for generic detection and smart sampling.
- 2000 Bio Genetic Technology, Non DTO: Rapid DNA/RNA isolation will be combined with immuno-polymerase chain reaction, using genetically-engineered antibodies and oligonucleotide probes. Genetic superlibraries will be constructed to mimic the complete human immune repertoire, and produce antibodies against any threat using phage display and rapid biopanning techniques.
- 2200 Ind Prot Non-DTO: Complete design upgrade and begin baseline model fabrication of integrated mask/helmet concepts for transitioning to JSAM and future soldier systems, demonstrate improved closure systems for CB clothing ensemble interface, determine mechanisms of heat and mass transport through membranes and textiles, and develop improved laboratory test methods for CB clothing materials.
- 4000 Coll Prot, Non-DTO: Transition pulsed light biological decon technology into a shipboard decon system development, integrate a regenerable/cleanable HEPA into a test bed, perform chemical agent testing of NOx adsorbing post treatment filter material for CATOX. Complete testing of full scale PSA system on USMC Amphibious Vehicle test bed. Complete full scale testing of NDI cleanable/regenerable HEPA filters. Complete residual life indicator development effort.
- 2550 Core S&T, Non DTO: Provide CB Threat and Aerosol Technology. Identify and evaluate emerging threat agents by literature, quantitative structure-activity relationships (QSAR), synthesis and toxicology experiments. Provide a set of standard test materials and methods for chemical agent vulnerability determinations of mil-std paints, polymeric materials (e.g., canopies), and protective garments. Provide wind tunnel and chamber facilities for bio aerosol challenges. Test and demonstrate next generation bio aerosol collectors for the Joint Biological Universal Detector (JBUD).

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BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)
	PROJECT CB2

FY 1999 Planned Program (cont):

- 3100 Joint Modeling and Simulation, Non DTO: Extend development of fixed site CBW effects and operability models for air bases, ports and depots to include mobile land force operability. Continue development of Chemical Weapons Navy Simulation (CWNAVSIM) for ship operability analysis. Continue development of matrix of Joint CB scenarios for use in value-added studies supporting Chem Bio Defense RDA programs. Enhance and convert CB DIS M&S suite to high level architecture (HLA) standards. Continue development of next generation, high resolution CBW environment model (MESO) for incorporation into hazard assessment for air/land/sea battle effectiveness.
- 1872 Decon, Non DTO: Complete studies on supercritical fluids for sensitive equipment decontamination and transition to demonstration phase. Finalize recommendations on the use of ozone for interior decon. Complete solution decon studies. Initiate studies on new dry powder decon materials. Integrate new technological approaches identified in FY98 technical workshop into new tasks.
- 381 Chemical Imaging Sensor, DTO: Demonstrate real-time operation at 30 Hz.

Total 31587

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	44073	35133	31500
Appropriated Value	44073	46596	
Adjustments to Appropriated Value	-1430	1500	
FY 1999 President's Budget	42643	48096	31587

Change Summary Explanation:

Funding: FY98 - Funding adjustments due to Congressional plus-ups for chemical detector technologies (+$10000), SAFEGUARD (+$3000) programs and for other Congressional adjustments (-$1537). Also, funding consolidated into the Chem Bio Defense Program IAW PL 103-160 from service accounts. Funding was moved from the Army (PE 0602705A) for work on enzyme-based chem/bio detection technology (+1500).

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 2 - Applied Research

PE NUMBER AND TITLE: 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)

PROJECT: SB2

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
SB2 SMALL BUSINESS INNOVATIVE RESEARCH (SBIR)	5180	0	0	0	0	0	0	0	5180

A. Mission Description and Budget Item Justification:

Project SB2 SMALL BUSINESS INNOVATIVE RESEARCH (SBIR): This project funds the Small Business Innovative Research/Small Business Technology Transfer (SBIR/STTR) program which emphasizes increasing private sector commercialization of technology developed through Federal Research and Development (R&D) and increasing small business participation in Federal R&D. These funds are placed in a common pool, and applicants are selected competitively for award on scientific and technical merit.

FY 1997 Accomplishments:

- 5180 SBIR/STTR funding allocated from budget activity 2.

Total 5180

FY 1998 Planned Program: No planned program

FY 1999 Planned Program: No planned program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)	PROJECT SB2

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	0	0	0
Appropriated Value	0	0	
Adjustments to Appropriated Value	5180		
FY 1999 President's Budget	5180	0	0

Change Summary Explanation:

Funding:

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 2 - Applied Research

PE NUMBER AND TITLE: 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)

PROJECT: TB2

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
TB2 MEDICAL BIOLOGICAL DEFENSE	10662	11103	12034	11911	12138	12387	12539	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project TB2 MEDICAL BIOLOGICAL DEFENSE: This project funds applied research on the development of vaccines and drugs to provide an effective medical defense against validated biological threat agents including bacteria, toxins, viruses and other agents of biological origin. By employing biotechnology, medical system will be designed to rapidly identify, diagnose, prevent and treat disease due to exposure to biological threat agents.

FY 1997 Accomplishments:

- 1090 Performed in vivo and in vitro testing of vaccine formulations for multivalent and monovalent brucella vaccine candidates.
- 1309 Identified several candidate strategies and antigens for second generation vaccine and for drug therapies for multiple strains of plague bacilli.
- 500 Identified animal models for glanders and typhus and established antibiotic sensitivities and validated decontamination methods for laboratory use.
- 1067 Characterized the most likely vaccine formulations for Western and Eastern equine encephalitis vaccines and further characterized protective efficacy of candidate vaccines for filoviruses.
- 2245 Initiated comparative studies for candidate selection process for approaches to multivalent staphylococcal enterotoxin B (SEB) vaccine.
- 2271 Studied the efficacy of subunit vaccine approach for multiple serotypes of botulinum vaccine and identified probable surrogate markers of protective immunity.
- 1090 Continued studies on novel vaccine approaches for ricin, as well as drug and vaccine delivery methods.
- 1090 Developed immunoassay reagents for filovirus.

Total 10662

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BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)
	PROJECT TB2

FY 1998 Planned Program:

•	1098	Conclude evaluation of potential adjuvants for use with plague vaccine candidate.
•	934	Determine in a mouse model the virulence/protective efficacy of live attenuated brucellae containing multiple gene deletions.
•	1554	Determine immunogenicity potential for glanders and typhus vaccine candidates in animal models and prepare diagnostic reagents.
•	1315	Prepare immunological and nucleic acid reagents for emerging diagnostic technologies and test with preclinical specimens.
•	2343	Determine synergistic combination of drugs that block SEB-induced effects in vitro and test subsequently in mouse model.
•	1006	Test intranasal liposomal ricin A chain subunit vaccine in animal models.
•	1936	Perform final studies on growth kinetics and immunogenicity of candidate vaccine constructs for WEE and EEE and recombinant filoviruses and initiate animal studies to screen antiviral compounds for post-exposure treatment of smallpox.
•	731	Investigate potential modes of treatment that block or reverse the effects of the toxins for clostridium perfringens.
•	186	SBIR/STTR
Total	11103	

FY 1999 Planned Program:

•	624	Evaluate virulence and protective efficacy of live attenuated brucellae mutant vaccines in animal model.
•	4009	Identify adjuvants to enhance immunogenicity of glanders vaccine candidates and construct recombinant vaccine candidates and evaluate mechanisms for attenuating the agent for typhus vaccine development.
•	2715	Evaluate mechanisms for increased shelf life of immunological and nucleic acid diagnostic reagents for field use.
•	2191	Test long-term efficacy of SEB vaccine candidates.
•	839	Conduct safety preclinical trials of immunization in non-human primates for ricin A chain.
•	1656	Screen potential antiviral compounds for activity against filovirus in animal model of infection.
Total	12034	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)
	PROJECT TB2

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	11020	11474	12386
Appropriated Value	11020	11103	
Adjustments to Appropriated Value	-358		
FY 1999 President's Budget	10662	11103	12034

Change Summary Explanation:

Funding:

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 2 - Applied Research

PE NUMBER AND TITLE: 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)

PROJECT: TC2

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
TC2 MEDICAL CHEMICAL DEFENSE	12344	12982	14062	13965	14153	14445	14621	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project TC2 MEDICAL CHEMICAL DEFENSE: This project funds medical chemical defense applied research, and emphasizes the prevention of chemical casualties through application of pharmaceuticals for prevention and treatment of the toxic effects of nerve, blister, respiratory, and blood agents. This project supports applied research of prophylaxes, pretreatments, antidotes, skin decontaminants, and therapeutic compounds that will counteract the lethal, physical, and behavioral toxicities of chemical agents. It also supports development of medical chemical defense materiel that ensures adequate patient care, field resuscitation, and patient management procedures.

FY 1997 Accomplishments:

- 1761 Demonstrated changes in cytoskeleton component of Human Epidermal Keratinocyte (HEK) consistent with morphologic changes in HD exposed skin explants.
- 1896 Characterized proteolytic activity and defined specific protease inhibitors effective against HD exposure in animal models.
- 2253 Demonstrated a requirement for alcohol dehydrogenase activity for HD inhibition of protein phosphatase 2A.
- 1761 Completed screening of anticonvulsant pharmaceuticals in small animal studies, such as guinea pigs, with prioritization of leading effective compounds.
- 948 Developed a method of inducing secretion of and purification of bioscavenger for nerve agents from liver cells and continued research to isolate catalytic antibodies to soman.
- 813 Investigated binding antibodies to detect soman in solution using simplified Enzyme Linked Immunosorbent Assay (ELISA) procedures.
- 204 Evaluated methemoglobin monitor in vivo.
- 1354 Investigated potential modes of treatment or diagnosis for low dose exposure to chemical warfare (CW) agents.
- 1354 Characterized the mode of action of the active reagents of candidate reactive topical skin protectants, and completed validation of the weanling pig erythema test for mustard vapor.

Total 12344

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BUDGET ACTIVITY 2 - Applied Research	PE NUMBER AND TITLE 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)
	PROJECT TC2

FY 1998 Planned Program:

•	4716	Characterize effects of HD on multiple points of metabolic disruption.
•	1383	Complete development of appropriate in vitro and in vivo model systems for screening nerve agent countermeasures.
•	2515	Evaluate the existing skin decontamination methods for use in wound decontamination for vesicant agents.
•	377	Develop early prognostic indicators for successful treatment of pulmonary injury to aid in early return to duty of casualties. Identify available therapies for treatment of nerve agent ocular effects.
•	1132	Develop a system to analyze products of reaction in the decontamination process for candidate reactive topical skin protectants.
•	629	Evaluate use of cloned human carboxylesterases as nerve agent scavengers.
•	2012	Define a model system to compare and analyze potential modes of treatment for and/or diagnosis of low dose or chronic exposure to CW agents.
•	218	SBIR/STTR
Total	12982	

FY 1999 Planned Program:

•	3315	Evaluate promising analytical procedures for vesicant-induced inflammation to levels useful in diagnosis and dosimetry.
•	1913	Continue to characterize alterations of the active-site gorge of acetylcholinesterase resulting from nerve agent inhibition. Evaluate novel drugs developed by academia/industry for potential nerve agent anticonvulsants and develop non-human primate electroencephalogram (EEG) test model to evaluate anticonvulsant action of leading compounds against soman poisoning.
•	4370	Continue to evaluate skin graft and antimicrobial wound dressing and treatments for blister agents.
•	510	Develop far-forward, rapid diagnostic tests for blister and nerve agents for real-time analysis of clinical samples on the battlefield and identify reactive components in the development of a wound decontamination system.
•	1021	Define and characterize the reaction kinetics of leading compounds for reactive topical skin protectants and develop animal wound decontamination models.
•	2933	Develop metrics to monitor long-term effects of low dose or chronic exposure to CW agents in a model system.
Total	14062	

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DATE: February 1998

BUDGET ACTIVITY: 2 - Applied Research

PE NUMBER AND TITLE: 0602384BP CHEMICAL/BIOLOGICAL DEFENSE (APPLIED RESEARCH)

PROJECT: TC2

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	12759	13416	14474
Appropriated Value	12759	12982	
Adjustments to Appropriated Value	-415		
FY 1999 President's Budget	12344	12982	14062

Change Summary Explanation:

Funding:

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)

COST (*In Thousands*)		FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	41714	48349	42762	36571	36514	38977	41073	Continuing	Continuing
CB3	CHEMICAL BIOLOGICAL DEFENSE (ADV TECH DEV)	16363	16984	11638	5709	5334	7065	8903	Continuing	Continuing
CP3	COUNTERPROLIFERATION SUPPORT	7471	7593	7373	6999	7061	7298	7250	Continuing	Continuing
TB3	MEDICAL BIOLOGICAL DEFENSE (INDUSTRIAL BASE)	9711	13411	14004	14098	14204	14496	14676	Continuing	Continuing
TC3	MEDICIAL CHEMICAL DEFENSE (LIFE SPT)	8169	10361	9747	9765	9915	10118	10244	Continuing	Continuing

Mission Description and Budget Item Justification: This program element provides demonstration of technologies to enhance U.S. forces' ability to deter, defend against, and survive chemical and biological (CB) warfare. This PE funds advanced technology development for Joint Service and Service-specific requirements in both medical and non-medical CB defense areas. The medical program aims to produce drugs, vaccines, and medical devices as countermeasures against CB threat agents. Specific areas of medical investigation include: prophylaxis, pretreatment, antidotes and therapeutics, personnel and patient decontamination and medical management of casualties. In the non-medical area, the focus is on demonstrations of CB defense technologies, including biological detection, chemical detection and decontamination. These demonstrations, conducted in an operational environment with active user and developer participation, integrate diverse technologies to improve DoD Chemical Biological Warfare (CBW) defense and deterrence. These demonstrations are leveraged by the Counterproliferation Support Program and include remote Biological Detection. Work conducted under this PE transitions to and provides risk reduction for Demonstration/Validation (PE 0603884BP) and Engineering/Manufacturing Development (PE 0604384BP) activities. The work in this program element is consistent with the Joint Service Research Development and Acquisition (RDA) Plan. This program element also provides for the conduct of advanced technology development in the areas of real-time sensing, accelerated BW operational awareness and the restoration of operations following a BW/CW attack. This program is dedicated to conducting proof of principal field demonstrations and tests of system-specific technologies to meet specific military needs and is therefore correctly placed in Budget Activity 3.

Note: The R-1 total for FY1997 for this PE shows an error because funds were recorded in the wrong PE. This R-2 reflects the correct distribution and expenditure of funding.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)

PROJECT: CB3

COST *(In Thousands)*	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CB3 CHEMICAL BIOLOGICAL DEFENSE (ADV TECH DEV)	16363	16984	11638	5709	5334	7065	8903	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project CB3 CHEMICAL BIOLOGICAL DEFENSE (ADV TECH DEV): This project demonstrates technology advancements for Joint Service application in the areas of: agent detection and identification, decontamination, and individual/collective protection which will speed maturing of advanced technologies to reduce risk in system-oriented Demonstration and Validation. This project funds the Integrated Biodetection Advanced Technology Demonstration (ATD). This ATD will fabricate, demonstrate and integrate advanced point and standoff biodetection technologies. This project is the only DoD program demonstrating new technologies to counter biological warfare threats and improving current developmental biodetection systems. This program also funds the Chemical Biological Incident Response Force (CBIRF), Small Unit Biological Detector(SUBD) in support of consequence management against terroist-initiated NBC incidents by demonstrating and developing state-of-the-art sensor technology.

FY 1997 Accomplishments:

- 7231 Built a phase II-brassboard of an automated DNA Diagnostic using chip based polymerase chain reaction (PCR). Developed an automated DNA Diagnostic (ADD) technology to increase bio point detection capability as part of the Integrated Biodetection ATD. Demonstrated the capability of a remotely-deployed network to provide area warning capability to high value targets as part of the Integrated Biodetection ATD, and leveraged with additional efforts funded under the Counterproliferation support program. Developed optimum Bio Sensor arrays for infantry brigade, infantry battalion, armor squadron, and armor battalion. Developed tool to realistically simulate array performance against missiles, rockets, artillery and back pack sprayer attacks.
- 500 Conducted testing on current masks against Bio agent simulants. Began development of an imaging system to evaluate bio threats.
- 8632 Synthesized antibodies to known protein coats of bacterial spores; continued to develop hand held multiplexed Upconverting Phosphors (UCP) biodetector; completed integration and began laboratory testing of Fiber Optic Wave Guide and UCP in multiplexed biosensor for real-time sensing. Demonstrated smart message server for treatment, detection and protection; integrated quantitative medical readiness training with BW response systems; demonstrated real-time logistical support for BW operational awareness. (DARPA)

Total 16363

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 3 - Advanced Technology Development	PE NUMBER AND TITLE 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)	PROJECT CB3

FY 1998 Planned Program:

- 6670 Bio ATD - Conclude development and demonstrate the capability of remotely-deployed integrated biodetection network to provide an early warning capability to high value targets. Continue development of ADD technology. Develop Bio modules for ATD.
- 975 JS Chem Bio Detector - Evaluate the efficacy of Non-Developmental decontaminants in laboratory and panel testing procedures. Assess efficacy of decontaminants in conjunction with applicator systems in chamber studies. Conduct engineering testing and evaluation of novel applicator systems. Perform market survey of Non-Developmental Items (NDI) and identify most promising new leads.
- 1619 JSWILD - Initiate design and fabrication of brassboard system.
- 1450 SUBD - Conduct development and demonstration of microfluidics optical sensor technology.
- 1200 SUBD - Optimize fluorochome based sensor technology for demonstration and test to enhance hand-held detector applications.
- 1510 SUBD - Continue development of an improved Small Unit Biological Detector (SUBD) using demonstrated improved sensor technology.
- 3400 Biocide Decon - Initiate development of advanced biocide CBW protection material and application for personal protection and casualty care.
- 160 SBIR/STTR

Total 16984

FY 1999 Planned Program:

- 6983 Bio ATD - Conduct with user a warfighting experiment demonstrating separately and jointly the bio point ADD and remote early warning technologies as part of the ATD.
- 3732 JSWILD - Complete and demonstrate brassboard system.
- 923 JSCBD - Complete assessment of dry powder decontaminant applicator. Perform laboratory testing on additional NDI materials/systems and chamber studies on the most promising leads. Select optimal material(s) and transition to Modular Decon System.

Total 11638

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 3 - Advanced Technology Development	PE NUMBER AND TITLE 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)
	PROJECT CB3

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	16893	9845	10075
Appropriated Value	16893	9526	
Adjustments to Appropriated Value	-530	7458	
FY 1999 President's Budget	16363	16984	11638

Change Summary Explanation:

Funding: FY98 - Funding consolidated into the Chem Bio Defense Program IAW PL 103-160 from service accounts. Funding was moved from the Marine Corps for work on a Small Unit Biological Detector (SUB-D) (+$4160) and from the Army for enzyme detector technologies (+$3298). FY99 - Funding consolidated into the Chem Bio Defense Program IAW PL 103-160 from service accounts. Funding was moved from the Army (PE 0603013A) for TRACTOR DIRT suit technologies (+$1870). Other economic adjustments (-$307).

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)

PROJECT: CP3

COST *(In Thousands)*	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CP3 COUNTERPROLIFERATION SUPPORT	7471	7593	7373	6999	7061	7298	7250	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project CP3 COUNTERPROLIFERATION SUPPORT: The mission of the Counterproliferation Support Program (CPSP) is to address shortfalls in DoD's deployed capability to defend against and counter the proliferation of weapons of mass destruction (WMD). By focusing on short term results, the CPSP accelerates delivery of new tools, equipment and procedures into the hands of combat forces. Under the passive defense pillar, the CPSP enhances the efforts of the Chemical and Biological Defense Program. This program directly supports the Advanced Concept Technology Demonstration (ACTD) for the Joint Biological Early Warning System (JBREWS) and initiates the effort for decontamination and restoration operations (RESTOPS) following a BW/CW attack. This program will fund a variety of projects to defend our forces against WMD.

FY 1997 Accomplishments:

- 930 ABPACTD - Initiated development/integration of software/hardware interfaces for biological and chemical detectors. Demonstrated automated warning and reporting from bio-network during AirBase/Port Biological Detection (Portal Shield) ACTD field trials.
- 1017 BIODET - Developed design for incorporating upconverting phosphors in a miniaturized flow cytometer biological agent detection prototype that will have an eight antigen multiplex capability with increased dynamic range and sensitivity.
- 515 BIODET - Completed development of low cost Fiber Optic Wave Guide (FOWG) biological agent detection prototype.
- 249 BIODET - Completed preliminary baseline for battlefield detection and discrimination of biological warfare (BW) agents in the presence of natural and man-made interferents.
- 577 BIODET - Demonstrated advanced materials and technologies for a Miniaturized Environmental Air Sampler and Concentrator for Biological Materials. Developed advanced materials with next generation aerodynamic filtration efficiencies, greatly enhancing the capability to entrap biological agents, including bacteria and viruses.
- 2790 BIODET - Developed advanced technologies for a high sensitivity, broadband miniaturized mass spectrometer for identification and classification of biological and chemical agents.
- 960 BIODET - Initiated the miniaturization and integration of UV-LIF into the tiny time-of-flight mass spectrometer system.
- 433 BIO Non Sys - Initiated background aerosol particle and liquid sampling for identification of battlefield interferents at outside the continental United States (OCONUS) fixed sites assets.

Total 7471

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)

PROJECT: CP3

FY 1998 Planned Program:

•	930	ABPACTD - Complete development/integration of software/hardware interfaces for biological and chemical detectors. Demonstrate automated warning and reporting from bio-network during Air Base/Port Biological Detection (Portal Shield) ACTD field trials.
•	3595	BIODET - Continue advanced technologies development for a high sensitivity, broadband miniaturized mass spectrometer for identification and classification of biological and chemical agents.
•	500	BIODET - Continue advanced materials and technologies development for the Miniaturized Environmental Air Sampler and Concentrator for Biological Materials.
•	1100	BIODET - Continue upconverting phosphor technology development for miniaturized flow cytometer biological agent detection prototype.
•	279	BIO Non Sys - Continue background aerosol particle and liquid sampling for identification of battlefield interferents at outside the continental United States (OCONUS) fixed sites assets.
•	1062	RESTOPS - Initiate preliminary investigation of available technologies to do restoration operations. Prepare actual exercises to baseline current capability to do restoration of operations with emphasis on identifying areas of improvement.
•	127	SBIR/STTR
Total	7593	

FY 1999 Planned Program:

•	613	BIODET - Transition advanced materials technologies developed for the Miniaturized Environmental Air Sampler and Concentrator for Biological Materials to the combined aerosol sampler and detector.
•	3212	BIODET - Continue advanced technologies development for high sensitivity biological/chemical agent detection using broadband, miniaturized mass spectrometer techniques.
•	1000	BIODET - Continue to transition upconverting phosphor technology development for miniaturized flow cytometer biological agent detection prototype.
•	606	BIO Non Sys - Continue background aerosol particle and liquid sampling for identification of battlefield interferents at outside the continental United States (OCONUS) fixed sites assets.
•	1942	RESTOPS - Continue concept development of Large Area Decontamination technologies with supporting survivability and hazard analysis for restoration operations.
Total	7373	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 3 - Advanced Technology Development	PE NUMBER AND TITLE 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)	PROJECT CP3

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	7719	7845	6075
Appropriated Value	7719	7593	
Adjustments to Appropriated Value	-248		
FY 1999 President's Budget	7471	7593	7373

Change Summary Explanation:

Funding: FY1999: Program restructured and funds realigned from 0603884 Project CP4 JBREWS to fund upfront studies for Restoration Operations ACTD (+$1298).

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)

PROJECT: TB3

COST *(In Thousands)*	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
TB3 MEDICAL BIOLOGICAL DEFENSE (INDUSTRIAL BASE)	9711	13411	14004	14098	14204	14496	14676	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project TB3 MEDICAL BIOLOGICAL DEFENSE (INDUSTRIAL BASE): This project funds pre-clinical development of safe and effective prophylaxis and therapy (vaccines and drugs for exposure to biological threat agents). This project also supports the advanced technology development of kits to rapidly diagnose exposure to biological agents in clinical samples. To complete the defensive effort, a broad range of technologies involved in the targeting and delivery of prophylactic and therapeutic medical countermeasures is evaluated to ensure the protection of US forces.

FY 1997 Accomplishments:

- 1634 Conducted studies to assess safety and efficacy of multivalent vaccine candidates to staphylococcal enterotoxins.
- 1726 Evaluated process flow of confirmatory diagnostic system and its reagents using relevant pre-clinical specimens.
- 1695 Initiated test of selected subunit vaccine candidate for ricin in safety and efficacy trials with non-human primate animal models.
- 1392 Evaluated efficacy of chemotherapeutic prophylaxis candidate for botulinum toxin and initiated studies of safety and efficacy of second generation vaccine candidate.
- 1109 Evaluated new treatment therapies for plague in animal models and studied safety, toxicity, and efficacy of vaccine candidates in pre-clinical models.
- 1123 Analyzed prototype monovalent vaccine for brucella.
- 1032 Initiated studies of safety and efficacy of Eastern and Western equine encephalitis vaccine candidates in animal models and began in vivo and in vitro testing of filovirus vaccine candidates.

Total 9711

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 3 - Advanced Technology Development	PE NUMBER AND TITLE 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)
	PROJECT TB3

FY 1998 Planned Program:

- 1311 Carry out final pre-clinical studies required for transition of plague vaccine to demonstration/validation.
- 1590 Perform final evaluation of efficacy of a polyvalent, live, vaccinia-vectored brucella vaccine in animal model system and establish safety of candidate typhus vaccines in animal models.
- 2040 Perform head-to-head comparison of confirmation for advanced development and test preparation of immunological and nucleic acid based diagnostic reagents to BW threat agents added to hand-held diagnostic devices.
- 2083 Prepare final data package for botulinum toxin C-fragment vaccine candidate for advanced development.
- 2713 Determine best adjuvant and dose schedule for recombinant Staphlococcus Enterotoxin B (SEB) vaccine in animal models for lethal and incapacitating effects.
- 2112 Conduct testing of ricin vaccine candidates in animal models for safety and efficacy and evaluate surrogate markers of protection.
- 980 Develop nucleic acid probes and primers for multiple orthopox gene regions to use in definitive diagnostic tests and evaluate neurovirulence of vaccine candidates against Western Equine Encephalitis (WEE) and Eastern Equine Encephalitis (EEE) viruses.
- 357 Complete in vitro testing of filovirus vaccine candidates.
- 225 SBIR/STTR

Total 13411

FY 1999 Planned Program:

- 2952 Compare protective efficacy of live attenuated vs. subunit vaccines, transition brucella vaccine candidate to Demonstration and Validation phase, and perform initial safety and efficacy studies for typhus vaccine candidates.
- 2534 Evaluate stability and potential interactions of immunological diagnostic reagents prepared and tested on multiplexed platforms.
- 771 Begin to construct models for multivalent vaccines including use of viral or bacterial-vectored vaccines, or DNA vaccines.
- 3118 Determine toxicity of drugs in animal models to evaluate use in treatment of typhus and staphylococcal enterotoxin exposure.
- 2066 Continue clinical trials of ricin A subunit vaccine candidate for safety and efficacy and evaluate surrogate markers of protection.
- 936 Develop data package for Milestone I transition of EEE virus and WEE virus vaccine and construct final early rapid assay and final confirmation-level assay systems for the orthopox viruses to differentiate smallpox.
- 1627 Evaluate the safety and efficacy of filovirus vaccine candidates in animal models.

Total 14004

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DATE: February 1998

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)

PROJECT: TB3

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	10037	13860	14397
Appropriated Value	10037	13411	
Adjustments to Appropriated Value	-326		
FY 1999 President's Budget	9711	13411	14004

Change Summary Explanation:

Funding:

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 3 - Advanced Technology Development

PE NUMBER AND TITLE: 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)

PROJECT: TC3

COST *(In Thousands)*	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
TC3 MEDICIAL CHEMICAL DEFENSE (LIFE SPT)	8169	10361	9747	9765	9915	10118	10244	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project TC3 MEDICIAL CHEMICAL DEFENSE (LIFE SPT): This project supports the investigation of new medical countermeasures to include antidotes, pretreatment drugs, and topical skin protectants to protect U.S. forces against known and emerging chemical warfare (CW) threat agents. Capabilities are maintained for reformulation, formulation, and scale-up of candidate compounds using current good laboratory practices (cGLP). Analytical stability studies and safety and efficacy screening, in addition to pre-clinical toxicology studies, are performed prior to full-scale development of promising pretreatment or treatment compounds.

FY 1997 Accomplishments:

- 1025 Screened leading antivesicant compounds in cell viability assays.
- 1025 Assessed antivesicant compounds passing viability screen assessed in nicotinamide adenine dinucleotide (NAD+) depletion assay.
- 2366 Routinely used pig, hairless guinea pig, mouse ear, and hairless mouse in evaluation of antivesicant compounds.
- 1688 Modified decision point approach to allow screening of candidate pharmaceuticals against a broader spectrum of agents producing nerve agent seizures.
- 993 Optimized a monoclonal antibody that binds soman.
- 303 Established routine use of cultured human cells and skin explants in evaluation of therapeutic approaches to the HD injury.
- 769 Developed and validated animal models to evaluate new decontamination procedures. Prepared a decision tree network (DTN) for evaluating reactive Topical Skin Protectants (rTSPs), prepared 66 candidate formulations of rTSPs for DTN evaluation, and identified 33 candidate reactive moieties for rTSPSs.

Total 8169

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 3 - Advanced Technology Development	PE NUMBER AND TITLE 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)
	PROJECT TC3

FY 1998 Planned Program:

•	5057	Consolidate the testing profiles of candidate vesicant pretreatments in animal model systems. Perform toxicity and reactogenicity studies.
•	1141	Determine safety and immunologic response in animal models to mutagenized Butyrlcholinesterese (BuChE) nerve agent scavengers.
•	383	Conduct demonstration of cyanomethemoglobin level blood monitor for chemical casualty assessment leading to Milestone 0 transition.
•	1818	Evaluate leading compounds for ability to block nerve agent-induced electroencephalographic (EEG) changes and seizures in non-human primate.
•	860	Formulate candidate reactive moieties for reactive topical skin protectant into an acceptable base.
•	945	Evaluate, in animals, the effects of improved intracellular delivery of antioxidants to cells undergoing free radical attack due to mustard gas exposure.
•	157	SBIR/STTR
Total	10361	

FY 1999 Planned Program:

•	4966	Perform efficacy and safety studies in appropriate animal model of candidate treatments for vesicant-induced inflammation leading to down-selection for Demonstration and Validation phase.
•	1313	Conduct dose-ranging studies and efficacy studies of candidate nerve agent scavengers in non-human primates.
•	469	Develop and demonstrate computer-assisted expert system for management of chemical casualties to serve as an adjunct to field diagnostics. Determine the efficacy of FDA approved ocular therapies against HD, evaluate available therapeutic interventions to inhalation HD exposure in the pig, and complete testing of therapeutic regimes for HD contaminated wounds.
•	1969	Construct final data package for advanced anticonvulsant including clinical toxicity, safety and efficacy data for milestone decision.
•	1030	Perform final reformulation and rank order reactive topical skin candidates. Identify and acquire novel wound decontamination reactive moieties.
Total	9747	

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BUDGET ACTIVITY 3 - Advanced Technology Development	PE NUMBER AND TITLE 0603384BP CHEMICAL/BIOLOGICAL DEFENSE (ADVANCED DEVELOPMENT)
	PROJECT TC3

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	8443	9673	10034
Appropriated Value	8443	9361	
Adjustments to Appropriated Value	-274	1000	
FY 1999 President's Budget	8169	10361	9747

Change Summary Explanation:

Funding: FY98: Funding consolidated into the Chem Bio Defense Program IAW PL 103-160 from service accounts. Funding was moved from the Army (PE 0603002A) for work on mustard gas research (+1000).

Schedule:

Technical:

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

COST (*In Thousands*)		FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	45133	53413	60404	40815	54749	43362	29481	Continuing	Continuing
BJ4	BIOLOGICAL DEFENSE	0	1851	1904	1837	1829	1885	1905	Continuing	Continuing
CA4	CONTAMINATION AVOIDANCE	6863	140	0	811	8151	9125	0	0	25090
CO4	COLLECTIVE PROTECTION	8803	3517	0	0	0	0	0	0	12320
CP4	COUNTERPROLIFERATION SUPPORT	12740	30496	43065	19072	18704	18937	19401	Continuing	Continuing
DE4	DECONTAMINATION SYSTEMS	7576	6817	4422	6942	10735	2307	2475	Continuing	Continuing
MB4	MEDICAL BIOLOGICAL DEFENSE	5338	9726	8793	9332	13044	9135	3764	Continuing	Continuing
MC4	MEDICAL CHEMICAL DEFENSE	3813	866	2220	2821	2286	1973	1936	Continuing	Continuing

Mission Description and Budget Item Justification: Operational forces have an immediate need to safely operate, survive and sustain operations in a chemical and biological (CB) agent threat environment across the continuum of global, contingency, special operations/low intensity conflict, counternarcotics, and other high risk missions. This program element supports the Pre-Engineering & Manufacturing Development (Pre-EMD) DEMVAL efforts of CB defensive equipment, both medical and non-medical, and addresses various shortcomings identified in CONDUCT OF THE PERSIAN GULF WAR: FINAL REPORT TO CONGRESS, April 1992. These projects have been restructured to consolidate Joint and Service-unique tasks within four commodity areas: contamination avoidance, force protection (individual and collective), decontamination and medical countermeasures. The consolidation provides for development and demonstration testing of equipment for Joint Service as well as Service-unique requirements. This program is enhanced using Counterproliferation Support Program funding. This Pre-EMD PDRR program funds for: collective protection equipment such as the Advanced Integrated Collective Protection System (AICPS) and Naval shipboard collective protection; an array of chemical/biological/toxin detection and warning systems to include the Lightweight Nuclear Biological and Chemical Reconnaissance System (LNBCRS), evaluation of promising technologies for Joint Chemical Agent Detector (JCAD) applications and the Joint Service Lightweight Stand-off Chemical Agent Detector (JSLSCAD); decontamination capabilities to include the sorbent technology and the Modular Decontamination System (MDS); and identification and sampling components for future Joint Biological Point Detection Block and Remote Detection Upgrades. In the medical chemical/biological defense area this Pre-EMD DEMVAL program funds improved medical equipment, vaccines, and drugs essential to counteracting lethal and human performance degrading effects of chemical and biological agent threats. Specific items include improvements to nerve agent antidotes, topical skin protectants, anticonvulsants, biological agent diagnostics, and vaccines to protect against botulinum toxin, staphylococcal enterotoxin B, Venezuelan equine encephalitis, ricin, and anthrax.

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

This program element focuses on efforts associated with advanced technology development used to demonstrate general military utility to include demonstration and validation in the area of chemical/biological defense equipment and is correctly placed in Budget Activity 4.

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DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: BJ4

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
BJ4 BIOLOGICAL DEFENSE	0	1851	1904	1837	1829	1885	1905	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project BJ4 BIOLOGICAL DEFENSE: Detection and characterization of biological warfare (BW) agents is #1 on the CINC/JROC Counterproliferation priorities list. DoD Biological Defense mission area requires the detection of biological threat agents to provide early warning capabilities at high value mobile and fixed site locations. The detection system will provide detection, identification, warning and sample collection for verification of large area or point source biological attacks. This program supports the Program Definition and Risk Reduction (PDRR) of advanced detection, identification and sampling components for future Joint Biological Point Detection System (JBPDS) Block I/II and Joint Biological Remote Early Warning System (JBREWS) upgrades.

Acquisition Strategy: This program will provide technology upgrades to the JBPDS Block I/II programs as well as the JBREWS. This program will ensure design maturity of the most promising biological detection components (triggers, samplers, detectors, identifiers) for insertion into ongoing JBPDS/JBREWS EMD programs.

FY 1997 Planned Program: No planned program

FY 1998 Planned Program:

- 1020 JBPDS - Initiate concept development and design of candidate bio-suite components for the Block II system.
- 500 JBPDS - Conduct chamber/field tests of candidate Block II biological suite components.
- 300 JBPDS - Conduct effectiveness analysis of candidate biological detector components for the JBPDS, Blocks I and II.
- 31 SBIR/STTR

Total 1851

FY 1999 Planned Program:

- 1024 JBPDS - Continue concept development and design of candidate bio-suite components for Block II system.
- 550 JBPDS - Continue chamber/field tests of candidate Block II biological suite components.
- 330 JBPDS - Conduct abbreviated analysis of potential biological detector components for the JBPDS Block II.

Total 1904

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: BJ4

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	0	1914	1897
Appropriated Value	0	1851	
Adjustments to Appropriated Value	0		
FY 1999 President's Budget	0	1851	1904

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
CP4 COUNTERPROLIFERATION SUPPORT	12740	30496	43065	19072	18704	18937	19401	Cont'd	Cont'd
BJ5 BIOLOGICAL DEFENSE	32652	41538	48245	38104	42620	19935	23150	Cont'd	Cont'd
JP0100 JOINT BIO POINT DETECTION SYSTEM	0	0	0	66162	59856	63933	62627	Cont'd	Cont'd
JPO210 CRITICAL REAGENTS PROGRAM (CRP)	0	0	1759	2530	2035	2027	2115	Cont'd	Cont'd
M93001 BIO INTEGRATED DETECTOR SYSTEM (BIDS)	20917	40393	15014	12265	0	0	0	0	88589

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Demonstration and Validation	0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)	BJ4

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
CRP												
Critical Reagent Program Begins				X								
JBPDS												
Start of Work Meeting			X									
Preliminary Design Review					X							
Critical Design Review							X					
Perform EDT								X	X	X		
Perform PPQT										X	X	X
Perform IOT&E												X
Initiate concept analysis for Block II									X	X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)	DATE February 1998
BUDGET ACTIVITY **4 - Demonstration and Validation**	PE NUMBER AND TITLE **0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)** PROJECT **BJ4**

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Development Test and Evaluation	0	800	880
Hardware Development	0	1020	1024
Regulatory Affairs	0	31	0
Total	0	1851	1904

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CA4

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CA4 CONTAMINATION AVOIDANCE	6863	140	0	811	8151	9125	0	0	25090

A. Mission Description and Budget Item Justification:

Project CA4 CONTAMINATION AVOIDANCE: This project conducts Pre-EMD DEMVAL of reconnaissance, detection, and identification equipment. Items included are: Joint Service Lightweight Nuclear Biological Chemical Reconnaissance System (JSLNBCRS), which provides field unit commanders with real-time data that can be used to assess the field for NBC hazards while on-the-move; Joint Service Lightweight Standoff Chemical Agent Detector (JSLSCAD) which provides chemical agent detection and mapping for chemical agent clouds; and Joint Chemical Agent Detector (JCAD) technology evaluation to address requirements.

Acquisition Strategy:

JSLSCAD	In-house studies/market investigation of tech base initiatives and other available technologies. In-house testing of promising technologies focusing on potential for shipboard integration and joint service development. Single contract for fabrication of production quantities for all Services.
JCAD	Focusing joint service science and technology efforts in small lightweight chemical detection into a single effort supporting Engineering and Manufacturing Development (EMD) approval (2 Dec 97). JCAD will utilize acquisition reform initiatives to the fullest extent possible, to include contract award based on a performance specification, the use of a statement of objectives, and early industry involvement.
JSLNBCRS	In-house design of modular detection/warning suite for vehicle platform. System integrator to build prototypes for testing. Contractor fabrication of production units.

FY 1997 Accomplishments:

•	134	JCAD - Continued Naval applications and integration for JCAD. Continued demonstration of detector technology.
•	5	LSCAD - Integrated into LNBCRS.
•	2279	LSCAD - Continued advanced development model (ADM) design, testing (DT1) and development and refinement of acquisition documentation. Initiated development of design specifications and other technical data.
•	350	JSLNBCRS - Contracted for integration effort.
•	444	JSLNBCRS - Developed program documentation for MS I.
•	621	JSLNBCRS - Modeling and simulation; studies and analysis of conceptual design.
•	3030	JSLNBCRS - Contracted option for High Mobility Multi-purpose Wheeled Vehicle (HMMWV) prototype system development.
Total	6863	

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FY 1998 Planned Program:

- 138 JCAD - USN and USMC technical, acquisition, documentation and analysis support.
- 2 SBIR/STTR

Total 140

FY 1999 Planned Program: No planned program

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	6925	145	625
Appropriated Value	6925	140	
Adjustments to Appropriated Value	-62		
FY 1999 President's Budget	6863	140	0

Change Summary Explanation:

Funding: FY1999: The Joint Service Agent Water Monitor (JSAWM) Program slipped ($484) funds realigned to fund BA6 requirements. JCAD Program realigned: ($60) to CA5 for JCAD which transitioned to EMD and ($81) to fund higher priority program (MS6).

Schedule:

Technical:

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	PROJECT CA4

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
CA5 CONTAMINATION AVOIDANCE	50565	47069	44244	56931	21045	7689	5712	Cont'd	Cont'd
JF0100 JOINT CHEM AGENT DETECTOR (JCAD)	0	0	0	0	0	57547	56641	Cont'd	Cont'd
JX0002 CA SYSTEM FIELDING SUPPORT/SPARES	950	915	1075	1152	2101	2447	2483	Cont'd	Cont'd
M98801 AUTO CHEMICAL AGENT ALARM (ACADA), M22	9744	15324	29858	38728	51609	0	0	0	145263
MC0100 JT SVC LTWT NBC RECON SYS (LNBCRS)	0	0	0	0	41884	83336	84043	Cont'd	Cont'd
S02201 IMPROVED CHEMICAL AGENT MONITOR (ICAM)	3089	9560	9537	13306	13290	0	0	0	48782

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BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CA4

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
JCAD												
JORD		X	X	X								
SAF/AQ MS 0 Approval		X										
Release RFP			X									
Source Selection				X								
Milestone I/II Approval					X							
Award EMD Contract						X						
EMD					X	X	X	X	X	X	X	X
JSLSCAD												
Intiate EMD Phase	X											
Final Engineering Design							X					
Build Test Hardware and Software									X			
Conduct Engineering Test										X		
Conduct Critical Design Review											X	
JSLTNBCRS												
MS I						X						
Prototype Contract						X						
MS II												X

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DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CA4

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Contractor Engineering/Management Support	1223	0	0
Development Test and Evaluation	1160	0	0
Engineering Design	0	75	0
Fabrication	81	0	0
Government Engineering Support	673	0	0
Hardware Development	844	0	0
Integrated Logistics, Support	243	0	0
Program Office Support	150	25	0
Project Development	60	0	0
Project Management	1290	0	0
Regulatory Affairs	0	5	0
Software Development	495	0	0
Technical Data/Documentation	644	35	0
Total	6863	140	0

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DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CO4

COST *(In Thousands)*	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CO4 COLLECTIVE PROTECTION	8803	3517	0	0	0	0	0	0	12320

A. Mission Description and Budget Item Justification:

Project CO4 COLLECTIVE PROTECTION: This project conducts DEMVAL of CB collective protection systems which are smaller, lighter, less costly and more easily supported logistically at the crew, unit, ship and aircraft level. Items included are: Advanced Integrated Collective Protective System (AICPS) and Shipboard Collective Protection Equipment (SCPE). AICPS will integrate NBC filtration, environmental controls, and power source components in tactical and combat systems and exploit new filtration technology (regenerable filtration, catalytic oxidation or deep bed chromium-free carbon). The effort extends vehicular collective protection applications providing for reductions in system size, weight, energy and filter change logistics burden. AICPS can be integrated into multiple configurations to provide protection to different tactical systems. Additionally, the effort provides a system solution for countering future threat agents and alleviating the disposal problems associated with hazardous material chromium impregnated carbon filters. Shipboard CPE will provide a contaminant-free environment within specified zone boundaries of a ship so that mission essential operations and/or stand-down relief are achievable even though the exterior of the ship is contaminated.

Acquisition Strategy:

AICPS	Contractor design and system integration of two configurations for van or shelter platforms. Contractor procurement will be customer system dependent.
Shipboard CPE	In-house/contractor design, contractor fabrication of prototypes, in-house testing. Contractor procurement will be customer (ship platform) dependent.

FY 1997 Accomplishments:

•	4306	AICPS - Completed prototype redesign & fabrication for PPQT & IOT&E.
•	3425	AICPS - Initiated PPQT & IOT&E.
•	482	AICPS - Continued user interface & system integration.
•	590	Shipboard CPE - Continued refinement of amphibious ship backfit planning; completed shipboard filter evaluations.
Total	8803	

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PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CO4

FY 1998 Planned Program:

- 375 AICPS - Complete user interface and system integration.
- 697 AICPS - Obtain production performance specifications.
- 199 AICPS - Conduct Milestone II/III IPR.
- 2188 AICPS - Complete PPQT and IOT&E
- 58 SBIR/STTR

Total 3517

FY 1999 Planned Program: No planned program

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	8762	3582	0
Appropriated Value	8762	3517	
Adjustments to Appropriated Value	41		
FY 1999 President's Budget	8803	3517	0

Change Summary Explanation:

Funding:

Schedule: FY99: The AICPS program is type classified 4th quarter FY98. Beginning in FY99, the AICPS will be procured and funded by the respective hardware system needing AICPS.

Technical:

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BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CO4

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
CO5 COLLECTIVE PROTECTION	0	1131	1237	2503	2244	1441	1429	Cont'd	Cont'd
JF0102 TRANSPORTABLE COLLECTIVE PROTECTION SYSTEM	0	4889	3908	1946	0	0	0	0	10743
JN0012 NAVY SHORE EQUIPMENT	0	0	0	0	1654	2423	3932	Cont'd	Cont'd
JN0014 COLLECTIVE PROT SYS AMPHIB BACKFIT	0	0	0	12647	19380	19300	18260	Cont'd	Cont'd
JX0004 CO SYSTEM FIELDING SUPPORT/SPARES	64	24	0	0	0	0	0	0	88

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
AICPS												
DT/OT						X	X	X				
EDT		X	X	X								
Initiate PPQT & IOT&E					X	X	X	X				
MS II/III								X				
Performance Spec Available								X				
Prototype Redesign Fabrication			X									
SCPE												
Fabricate prototype equipment								X				
Complete test and evaluation											X	
Fleet Introduction												X

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DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CO4

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Development Test and Evaluation	952	2188	0
Fabrication Hardware	2660	0	0
Government Engineering Support	2243	574	0
Hardware Development	2358	0	0
Project Management	295	0	0
Regulatory Affairs	0	58	0
Technical Data/Documentation	0	697	0
Test & Evaluation	295	0	0
Total	8803	3517	0

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DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CP4

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CP4 COUNTERPROLIFERATION SUPPORT	12740	30496	43065	19072	18704	18937	19401	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project CP4 COUNTERPROLIFERATION SUPPORT: Detection and characterization of biological warfare (BW) agents is one of the highest Commander-in Chief (CINC) priorities for fielding of counterproliferation warfighting capabilities. U.S. maneuver forces and troops are vulnerable to upwind releases of BW agents. In addition, the DoD biological mission area requires the detection of BW threat agents to provide early warning for high-value, fixed-site assets. This project supports the accelerated Program Definition and Risk Reduction (PDRR) of an early warning BW detection system. The remote and standoff detection systems will provide cueing (is there a suspicious aerosol cloud?), detection (is a biological substance present?), discrimination (is a biological warfare agent present?) and identification (what is the biological warfare agent?) capabilities as part of a system-of-systems architecture. The technologies used in each detection system are different and are designed to complement each other in the total system architecture.

The cornerstone of the project consists of fielding an eye-safe, Long Range Biological Standoff Detection System (LR-BSDS) rapid prototype with a maximum operational range of 50 km. The LR-BSDS will detect the presence of man-made particulate aerosol clouds and provide the commander with capability to posture other detection systems to confirm the presence and type of biological agents using a light detection and ranging (LIDAR) eye-safe laser (1.56 micron) system. Based on cueing, by other systems a Short Range Biological Standoff Detection System (SR-BSDS) will provide detection and possibly discrimination of aerosol clouds up to 2 kilometers away. Each system provides early warning and information to properly react and minimize or prevent casualties in the battlespace.

This project also supports and accelerates an Advanced Concept Technology Demonstration (ACTD) of the Joint Biological Remote Early Warning System (JBREWS). The primary objective of the remote early warning ACTD is to evaluate the military utility of remote early warning for BW attacks and to develop operational procedures associated with that capability. The project will demonstrate several remote early warning platforms that include, but are not limited to: artillery delivered remote detectors; man emplaced detectors; remotely piloted vehicle-mounted detectors and standoff active laser detectors. The first phase of the ACTD will develop and field an interim biological remote early warning capability. This project also supports and accelerates technologies for the restoration of operations at fixed sites following a BW/CW attack.

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BUDGET ACTIVITY **4 - Demonstration and Validation**	PE NUMBER AND TITLE **0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)**
	PROJECT **CP4**

Acquisition Strategy: Utilize non-traditional acquisition Advanced Concept Technology Demonstration (ACTD) to rapidly provide the CINC with a biological remote early warning capability and develop concept of operations and doctrine associated with that capability. Fabricate LR-BSDS using a competitive prime systems integration contract.

FY 1997 Accomplishments:

- 1890 JBREWS ACTD - Conducted technology definition and assessment of system performance of biological remote early warning systems.
- 4705 LR-BSDS - Continued fabrication of prototype items.
- 1280 LR-BSDS - Initiated component level Engineering Design Testing.
- 4865 SR-BSDS - Continued fabrication of UV test prototype and transitioned to ACTD for JBREWS.

Total 12740

FY 1998 Planned Program:

- 3000 JBREWS ACTD - Modeling and simulation system development. Use modeling and simulation systems to validate preliminary system designs and exercise concept of operations (CONOPS) for CINC-defined scenarios.
- 4475 JBREWS ACTD - Develop algorithms and software for biosensors and integrated network.
- 3000 JBREWS ACTD - Conduct chamber/field tests of JBREWS ACTD components.
- 1770 JBREWS ACTD - Develop CONOPS/Doctrine for CINC-defined biological warfare agents and conduct wargame/tabletop exercise.
- 5000 JBREWS ACTD - Develop preliminary biological remote early warning system design compatible with CINC-identified (EUCOM) biological warfare scenarios.
- 4619 LR-BSDS - Initiate fabrication of IOTE prototypes (#3 & #4).
- 1822 LR-BSDS - Conduct Customer Demonstration.
- 1200 LR-BSDS - Initiate retrofit/refurbishment.
- 1082 LR-BSDS - Initiate Developmental Testing.
- 4017 LR-BSDS - Complete Developmental Testing.
- 511 SBIR/STTR

Total 30496

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BUDGET ACTIVITY 4 - Demonstration and Validation	PE NUMBER AND TITLE 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)
	PROJECT CP4

FY 1999 Planned Program:

•	3000	JBREWS ACTD - Complete coding and simulation system development.
•	5000	JBREWS ACTD - Complete system design and conduct critical design review.
•	3000	JBREWS ACTD - Complete algorithm and software development.
•	2000	JBREWS ACTD - Conduct chamber tests of JBREWS ACTD components and subsystems.
•	3650	JBREWS ACTD - Conduct demonstration.
•	14000	JBREWS ACTD - Fabricate system leave-behinds for EUCOM area of operations.
•	1140	JBREWS ACTD - Complete development and prove-outs of CONOPS/Doctrine and wargame/tabletop exercise.
•	4586	LR-BSDS - Complete fabrication of IOTE prototypes.
•	1990	LR-BSDS - Complete Developmental Testing.
•	2500	LR-BSDS - Conduct IOTE.
•	1180	LR-BSDS - Complete retrofit/refurbishment.
•	495	LR-BSDS - IPR.
•	524	LR-BSDS - Trainer/Spares for fielding.
Total	43065	

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	13165	31514	45729
Appropriated Value	13165	30496	
Adjustments to Appropriated Value	-425		
FY 1999 President's Budget	12740	30496	43065

Change Summary Explanation:

Funding:

Schedule:

Technical:

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PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CP4

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
CP3 COUNTERPROLIFERATION SUPPORT	7471	7593	7373	6999	7061	7298	7250	Cont'd	Cont'd
BJ4 BIOLOGICAL DEFENSE	0	1851	1904	1837	1829	1885	1905	Cont'd	Cont'd
BJ5 BIOLOGICAL DEFENSE	32652	41538	48245	38104	42620	19935	23150	Cont'd	Cont'd
JPO200 JT BIO REM EARLY WARNING SYS (JBREWS)	0	0	0	0	0	36516	38123	Cont'd	Cont'd
JPO210 CRITICAL REAGENTS PROGRAM (CRP)	0	0	1759	2530	2035	2027	2115	Cont'd	Cont'd
JPO220 LONG RANGE BIO STANDOFF DET SYS (LRBSDS)	0	0	0	0	0	0	0	0	0

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
JBREWS												
JBREWS ACTD Architecture Study	X	X	X	X								
Initiate JBREWS ACTD Development	X											
Conduct JBREWS ACTD Demonstration											X	X
LRBSDS												
IPR CP LRBSDS					X							
MS IPR CP LRBSDS												X
Prototype #1 Complete						X	X	X	X	X	X	X
Prototype #2 Complete							X					
Engineering Development Tests							X					
Customer Demonstration								X				
Developmental Testing								X	X			
Prototype #3 and #4 Complete										X		
Operational Testing										X	X	

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DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: CP4

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Development Test and Evaluation	1280	5099	1990
Fabrication	9570	5819	19766
Hardware Development	1890	12475	12140
Integrated Logistics, Support	0	0	524
Program Office Support	0	0	495
Project Development	0	1770	0
Regulatory Affairs	0	511	0
Test & Evaluation	0	4822	8150
Total	12740	30496	43065

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BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: DE4

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE4 DECONTAMINATION SYSTEMS	7576	6817	4422	6942	10735	2307	2475	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project DE4 DECONTAMINATION SYSTEMS: This project provides DEMVAL of decontamination systems utilizing solutions which will provide operational, logistics, cost, safety and environmental advantages over current decontaminants. Funding supports the Modular Decontaminating System (MDS) - a Joint Service program - a more transportable, less labor intensive, and more effective system for applying decontaminating solutions and removing gross contamination from vehicle and equipment surfaces. Lessons learned from Desert Storm validated the need for a deployable and efficient decontamination system. The MDS reduces water usage and equipment processing time with increased water pressure and variable water temperature. The MDS consists of the XM21 Decontaminant Pumper (DP) Module for the application of decontaminants and powered brushing; and the XM22 High Pressure Washer (HPW) Module for removal of gross contamination and rinsing of decontaminants. Funding also supports the Sorbent Technology program which provides a reactive Sorbent for immediate decontamination. It will replace the M295 Decontamination Kit, for personal wipedown procedures and Decontaminating Solution 2 (DS2) in operator spraydown procedures. The Sorbent will be more reactive towards Chemical Warfare (CW) agents than the M295 Kit, therefore, the hazard associated with the spent decontaminant will be reduced. The Sorbent will be more compatible with Mission Oriented Protective Posture (MOPP) and other materials than the currently used DS2.

Acquisition Strategy: MDS In-house/contractor design and prototype fabrication for in-house testing. Contractor fabrication of production units. Sorbent In-house/contractor development and testing. Contractor manufacture of production units.

FY 1997 Accomplishments:

- 207 MDS - Completed fabrication of XM21 test hardware.
- 763 MDS - Completed XM22 Engineering Design Tests.
- 694 MDS - Fabricated XM22 test hardware.
- 1458 MDS - Initiated Pre-Production Qualification Planning and Tests.
- 1444 Sorbent - Completed Program Phase I Effectiveness Studies for base line candidate material.
- 1855 Sorbent - Performed Optimization Studies for down selected materials.
- 1155 Sorbent - Performed Health Hazard and Environment Assessment for candidate material.

Total 7576

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
4 - Demonstration and Validation	0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)	DE4

FY 1998 Planned Program:

•	1008	Joint MDS - Complete technical documentation.
•	1363	Joint MDS - Complete PPQT and IOT&E tests.
•	298	Joint MDS - Prepare Milestone III IPR.
•	896	Sorbent - Integrate Sorbent materials into M295 Kit.
•	1387	Sorbent - Complete Effectiveness Studies of candidate material.
•	1097	Sorbent - Demonstrate Functional Suitability.
•	654	Sorbent - Conduct Producibility Studies.
•	114	SBIR/STTR
Total	6817	

FY 1999 Planned Program:

•	470	Sorbent - Fabricate Operation Sprayer Prototype.
•	2489	Sorbent - Test and Evaluate Operation Sprayer Prototype.
•	1030	Sorbent - Award Program Phase III Contract for sorbent powder Operation Sprayer.
•	433	Sorbent - Prepare Engineering Change Proposal (ECP) for M11/M13 Decon Apparatus and conduct In-Process Review (IPR) to incorporate sprayer.
Total	4422	

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PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: DE4

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	8289	7045	4550
Appropriated Value	8289	6817	
Adjustments to Appropriated Value	-713		
FY 1999 President's Budget	7576	6817	4422

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
DE5 DECONTAMINATION	0	4838	3923	3906	3891	0	0	0	16558
G47001 MODULAR DECON SYSTEM	0	0	6035	6363	9842	10204	9901	Cont'd	Cont'd

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PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: DE4

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
MDS												
Contr Award XM22	X											
EDT XM21/XM22												
IOT&E						X	X	X				
MS III/TC IPR								X				
Prod Contract Award										X		
PPQT					X							
SORBDECON												
MS II		X										
Develop Sorbents		X										
Optimize Sorbents			X									

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BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: DE4

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Contractor Engineering/Management Support	3454	800	0
Development Test and Evaluation	2221	1363	500
Fabrication Hardware	901	1234	0
Government Engineering Support	1000	1298	1000
Hardware Development	0	900	0
Integrated Logistics, Support	0	0	200
Operational Test and Evaluation	0	0	2722
Regulatory Affairs	0	114	0
Technical Data/Documentation	0	1108	0
Total	7576	6817	4422

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BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: MB4

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MB4 MEDICAL BIOLOGICAL DEFENSE	5338	9726	8793	9332	13044	9135	3764	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project MB4 MEDICAL BIOLOGICAL DEFENSE: This project funds the Program Definition and Risk Reduction (PDRR) phase of vaccines, drugs and diagnostic medical devices which are directed against validated biological warfare agents to include bacteria, viruses, and toxins of biological origin. The PDRR phase of medical biological defense product development includes phase 1 clinical and experimental studies which evaluate product safety and efficacy, phase 2 dosing and scheduling studies, pilot lot production, and filing of the Investigation New Drug (IND) applications with the Food and Drug Administration (FDA).

Acquisition Strategy: A prime systems contract was awarded in November 1997 for a single integrator to manage the advanced development, production and storage of biological defense medical products. Involvement by the prime contractor in the PDRR phase is critical for the successful development of product safety, efficacy, and production data which the prime submits to the FDA for product licensure.

FY 1997 Accomplishments:

•	198	CRP - Initiated the support of hand-held assay production to begin in FY98.
•	593	Initiated safety studies on new Botulinum antiserum (de-speciated) in non-clinical trials to support an Investigational New Drug (IND) application with the FDA for clinical trials.
•	150	Continued clinical trials on Botulinum toxoid F vaccine.
•	210	Initiated SEB vaccine pilot-lot production and testing.
•	380	Initiated VEE vaccine neurovirulence testing and pre-clinical safety testing.
•	3807	Awarded a Prime Systems Contract to DynPort LLC in November 1997 for advanced development of Tularemia and Vaccinia vaccines.
Total	5338	

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	PROJECT MB4

FY 1998 Planned Program:

- 8944 Continue prime systems contract efforts with advanced development of Vaccinia vaccine and Tularemia vaccine and exercise option for SEB vaccine advanced development.
- 619 File an Investigational New Drug (IND) application with the FDA for clinical trials on a new Botulinum antiserum (de-speciated), and complete clinical trials on Botulinum toxoid F vaccine.
- 163 SBIR/STTR

Total 9726

FY 1999 Planned Program:

- 8091 Transition Vaccinia vaccine and Tularemia vaccine to EMD; continue efforts with advanced development of SEB vaccine and exercise options for the advanced development for VEE vaccine and vaccines against botulinum serotypes A & B.
- 702 Complete clinical trials on a new Botulinum antiserum (de-speciated).

Total 8793

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	5516	10051	6826
Appropriated Value	5516	9726	
Adjustments to Appropriated Value	-178		
FY 1999 President's Budget	5338	9726	8793

Change Summary Explanation:

Funding: FY1999: Reallocation of (+$2140) from vaccine production to support advanced development and testing of new vaccines with the prime systems contract effort. Other economic adjustments (-$173).

Schedule:

Technical:

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: MB4

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
MB5 MEDICAL BIOLOGICAL DEFENSE	7753	20804	15203	42593	54066	58111	56115	Cont'd	Cont'd
JX0005 JOINT VACCINE ACQUISITION PROGRAM (JVAP)	11837	23556	11074	18547	20713	25913	31163	Cont'd	Cont'd

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
CRP												
Critical Reagent Program Begins				X								
MEDBIO												
Award JVAP prime contract					X							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: MB4

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Regulatory Affairs	743	782	702
Test & Evaluation	4595	8944	8091
Total	5338	9726	8793

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: MC4

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MC4 MEDICAL CHEMICAL DEFENSE	3813	866	2220	2821	2286	1973	1936	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project MC4 MEDICAL CHEMICAL DEFENSE: This project funds advanced development of countermeasures for chemical agents including life support equipment, diagnostic equipment, pretreatment and therapeutic drugs, and individual/casualty decontamination compounds. A system of medical defense against chemical agents is required to provide protection, to sustain performance in a chemical environment, and to provide for self-aid and medical treatment of chemical casualties. For approval of a new drug, FDA requires demonstration of safety and efficacy, with multiple studies required for each.

Acquisition Strategy: Test and evaluate, in-house and commercially developed products in government managed trials.

FY 1997 Accomplishments:

- 3813 Demonstrated the human safety and technical performance of the cyanide pretreatment.

Total 3813

FY 1998 Planned Program:

- 562 Initiate validation of methemoglobin monitor.
- 289 Complete multiple dosing safety study for cyanide pretreatments.
- 15 SBIR/STTR

Total 866

FY 1999 Planned Program:

- 1154 Initiate animal toxicity and efficacy evaluation of advanced anticonvulsant.
- 1066 Complete validation and testing of methemoglobin monitor.

Total 2220

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: MC4

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	3938	894	2283
Appropriated Value	3938	866	
Adjustments to Appropriated Value	-125		
FY 1999 President's Budget	3813	866	2220

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
MC5 MEDICAL CHEMICAL DEFENSE	206	5094	1742	775	1155	1539	1619	Cont'd	Cont'd

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
MEDCHEM												
Cyanide Pretreatment - MS II							X					
Methemoglobin Monitor - MS I								X				
Advanced Anticonvulsant - MS I											X	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 4 - Demonstration and Validation

PE NUMBER AND TITLE: 0603884BP CHEMICAL/BIOLOGICAL DEFENSE (DEMVAL)

PROJECT: MC4

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Operational Test and Evaluation	1582	465	1872
Project Development	1241	308	0
Project Management	540	71	240
Regulatory Affairs	450	22	108
Total	3813	866	2220

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

COST (*In Thousands*)		FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	96403	126302	125312	156606	141603	109942	100645	Continuing	Continuing
BJ5	BIOLOGICAL DEFENSE	32652	41538	48245	38104	42620	19935	23150	Continuing	Continuing
CA5	CONTAMINATION AVOIDANCE	50565	47069	44244	56931	21045	7689	5712	Continuing	Continuing
CO5	COLLECTIVE PROTECTION	0	1131	1237	2503	2244	1441	1429	Continuing	Continuing
DE5	DECONTAMINATION	0	4838	3923	3906	3891	0	0	0	16558
IP5	INDIVIDUAL PROTECTION	5227	5828	10718	11794	16582	21227	12620	Continuing	Continuing
MB5	MEDICAL BIOLOGICAL DEFENSE	7753	20804	15203	42593	54066	58111	56115	Continuing	Continuing
MC5	MEDICAL CHEMICAL DEFENSE	206	5094	1742	775	1155	1539	1619	Continuing	Continuing

Mission Description and Budget Item Justification: Operational forces have an immediate need to safely operate, survive and sustain operations in a chemical and biological agent threat environment across the continuum of global, contingency, special operations/low intensity conflict, counternarcotics, and other high risk missions. Operating forces have a critical need for defense against worldwide proliferation of Chemical/Biological (CB) warfare capabilities and for medical treatment of casualties in medical treatment facilities. Congress directed centralized management of DoD CB Defense initiatives, both medical and non-medical. This program element supports the Engineering Manufacturing Development (EMD) of CB defensive equipment, both medical and non-medical, and addresses various shortcomings identified in CONDUCT OF THE PERSIAN GULF WAR: FINAL REPORT TO CONGRESS, April 1992. These projects have been restructured to consolidate Joint and Service unique tasks within four commodity areas: contamination avoidance, force protection (individual and collective), decontamination and medical countermeasures. The consolidation will provide for development and operational testing of equipment for Joint Service as well as Service unique requirements.

Contamination avoidance efforts under this engineering and manufacturing development program will provide U.S. forces with real-time hazard assessment capabilities. They include advanced multi-agent point and remote chemical detection systems for ground, aircraft, and shipboard applications; automated warning and reporting systems; integrated radiation detection and monitoring equipment; and enhanced battlefield reconnaissance capabilities. Force protection efforts will increase protection levels while decreasing physical and psychological burdens imposed by protective equipment. They include improved aircrew respiratory protection, lightweight integrated suit technology, and shipboard collective protection equipment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

The medical chemical defense engineering and manufacturing development program funds improved medical equipment and drugs essential to counteracting lethal and performance-degrading effects of chemical threats, and medical equipment essential to meeting medical requirements on the integrated battlefield with emphasis on decreased size/weight and high mobility, yet supporting large numbers of combat casualties. Additionally, foreign medical materiel may be procured for exploitation of advanced technology and development to meet medical defense goals. This program element supports the full-scale development of prophylactic and therapeutic drugs and rapid identification and diagnostic systems.

DoD Biological Defense mission requires the detection of validated biological threat agents to provide early warning capabilities on mobile and fixed platforms. This program element will provide theater protection through the development of point and stand-off detection systems. The detection system concept will provide detection, identification, warning and sample collection for verification that a biological agent attack has occurred. This program element also provides for the development of biological defense medical programs. DoD Biological Defense medical mission will address: (1) protective vaccines - vaccination capability against the most probable biological threat agents; (2) identification - clinical identification of biological threat agents through medical evaluation and laboratory analysis to augment early warning capabilities.

The projects in this Program Element support research efforts in the engineering and manufacturing development phases of the acquisition strategy and are therefore correctly placed in Budget Activity 5.

Note: The R-1 total for FY1997 for this PE shows an error because funds were recorded in the wrong PE. This R-2 reflects the correct distribution and expenditure of funding.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: BJ5

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
BJ5 BIOLOGICAL DEFENSE	32652	41538	48245	38104	42620	19935	23150	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project BJ5 BIOLOGICAL DEFENSE: DoD Biological Defense mission requires the detection of biological threat agents to provide early warning capabilities at mobile high value and fixed site locations. The detection system concept will provide detection, identification, warning, and sample collection for verification of large area and point source biological agent attacks. Project was supplemented in FY99 ($14M) for Air Base Port ACTD and ($1.5M) for the Critical Reagents Program as a result of the DOD Quadrennial Defense Review (QDR).

This project completes the development of the ground-based Biological Integrated Detection System (BIDS) P3I program. The BIDS P3I will consist of a shelter-configured detection suite (comprised of complementary generic, non-specific and specific detectors, identifiers, and supporting communications and meteorological equipment) mounted on a dedicated vehicle. The BIDS P3I program is part of a biological defense "system of systems" architecture for detecting biological warfare agents in the battlespace. The BIDS P3I will simultaneously identify eight agent types on the International Cooperative Agreements - Annex A6 (Bio Chemical Detector Demonstration and Validation Program). This project supports the development of a common point detection suite for all Services.

The Joint Biological Point Detection System (JBPDS) program is an integration of the Army BIDS, Navy Interim Biological Agent Detector (IBAD) and Air Force and Marine Corps Service specific development programs. The detection suite will meet the Service requirements as outlined in the Joint Operational Requirements Document (JORD). The suite will be capable of identifying, within 15 minutes, as a minimum, Biological Warfare (BW) agents listed in category A of International Task Force (ITF) 6 Report, dated 9 Feb 90. The suite will be integrated into each Services' platform (e.g. High Mobility Multi-Purpose Wheeled Vehicle (HMMWV), ship, truck, etc.) or airbase or port to provide a common detection capability with joint interoperability and supportability. The JBPDS will: increase the number of agents that can be identified by the BIDS and IBAD systems; provide automated knowledge-based, near real-time identification; and provide a first time point detection capability to the Air Force and Marine Corps. An evolutionary component/suite upgrade acquisition approach will be used to provide the Services a common point detection capability. The program is structured into two Block EMD phases. Block I EMD will provide the Services with an automated BW agent identification capability. Block II will upgrade the Block I production suites to full compliance with the JORD requirements.

This project includes the completion of the Navy shipboard IBAD in FY 99. IBAD gives the Navy an interim point detection capability aboard ships at sea, which will be part of the theater protection strategy. The JBPDS will replace the IBAD.

This project also supports the Air Base/Port Bio Detection (Portal Shield) Advanced Concept Technology Demonstration (ACTD) which will provide: 1) BW perimeter detection system; 2) C4I NBC Warning and Reporting; 3) unmasking procedures; 4) sensor decontamination equipment; 5) Contamination Detection kits; and 6) evaluation of commercial oronasal masks for potential civilian/Noncombatant Evacuation Operations (NEO) applications in CENTCOM/PACOM Area of Responsibility (AOR) .

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)
	PROJECT BJ5

The Critical Reagent Program (CRP) began in FY97 with MB4 funding. This project will integrate and consolidate all DoD reagents/antibodies/DNA biological detection requirements (PDRR through production). CRP will ensure the availability of high quality reagents throughout the life cycle of all BW detection/identification systems.

Acquisition Strategy:

BIDS P3I	Contractor/in-house market investigation, in-house non developmental item (NDI) prototype integration and fabrication for in-house testing. In-house fabrication of NDI BIDS. In-house Pre-Planned Product Improvement (P3I) development and market investigation. Contractor system integrator prototype fabrication for In-house testing. In-house fabrication of P3I production and NDI upgrade.
JBPDS	Prime System Integrator contract award and component development, contractor test, In-house/contractor platform integration. Contractor fabrication of production units.
IBAD	In-house development and fabrication of rapid prototypes.
AB/Port ACTD	In-house development and fabrication of detection prototypes and use of competitive omnibus contract for fabrication of residual items.
CRP	Consolidated R&D effort for all DoD biological detector/identification requirements.

FY 1997 Accomplishments:

•	4764	Air Base/Port ACTD - Continued development and conducted final system operational test at Dugway Proving Ground.
•	3709	BIDS P3I - Completed P3I design and technical documentation.
•	1310	BIDS P3I - Completed Mini FCM Development and Technical Documentation.
•	2009	BIDS P3I - Completed Bio Detector (BD) Development and technical documentation.
•	1309	BIDS P3I - Completed antibody development and technical documentation.
•	3010	BIDS P3I - Completed Prototype Fabrication and Engineering Test.
•	1309	BIDS P3I - Completed PPQT.
•	2224	BIDS P3I - Conducted IOT&E.
•	1010	BIDS P3I - Verified Technical Documentation.
•	231	IBAD - Continued support of rapid prototypes, continued installation on Naval ships and investigated aerosol background of Naval areas of operations.
•	3409	JBPDS - Initiated concept analysis and long-lead-item purchases of Block I EDT Detection suite components.
•	2721	JBPDS - Initiated modification and critical item testing of Block I Detection suite components.
•	1947	JBPDS - Conducted annual Joint Field Trials (JFT) at DPG.
•	3690	JBPDS - Initiated Block I System Integration Design.
Total	32652	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)	PROJECT BJ5

FY 1998 Planned Program:

•	750	Air Base/Port ACTD - Conduct/complete aerosol background sampling at CENTCOM/USFK air base/port sites.
•	14024	Air Base/Port ACTD - Fabricate five additional ACTD perimeter biological detector networks for CENTCOM/USFK air base/port sites.
•	1310	Air Base/Port ACTD - Initiate logistics support and fielding for CENTCOM/USFK air base/port sites.
•	1852	Air Base/Port ACTD - Conduct integrated biological/chemical perimeter detector network field test at Dugway Proving Ground.
•	2184	CRP- Develop 4-5 new antibody based reagents to support the development of the JBPDS Block I and the fielding of the Air Base/Port (Portal Shield) ACTD.
•	189	IBAD - Continue support of rapid prototypes, installation on Naval ships and investigation of aerosol background of Naval areas of operations.
•	4176	JBPDS - Initiate and complete preliminary design and complete purchase of EDT Block I Detection suite components.
•	4730	JBPDS - Complete fabrication of Block I Detection suite components.
•	2771	JBPDS - Initiate EDT of Block I components.
•	3833	JBPDS - Initiate and complete software development and testing of Block I system.
•	4000	JBPDS - Initiate system integration design for shipboard, fixed-site, S788 shelter and man portable installations.
•	1022	JBPDS - Conduct annual Joint Field Trials at Dugway Proving Ground.
•	697	SBIR/STTR
Total	41538	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD) — PROJECT: BJ5

FY 1999 Planned Program:

•	1887	Air Base/Port Biological Detection (Portal Shield) ACTD - Provide for contractor logistics support and fielding at CENTCOM/USFK Air Base/Port sites.
•	6893	Air Base/Port Biological Detection (Portal Shield) ACTD - Fabricate, assemble, and test approximately five additional Portal Shield systems for Korea/USFK AO.
•	6757	Air Base/Port Biological Detection (Portal Shield) ACTD - Purchase materiel and components for five additional Portal Shield systems and install in Korea/USFK AO.
•	2178	CRP - Develop 4-5 new antibody based reagents to support the development of the Airbase/Port (Portal Shield) and Joint Biological Point Detection System (JBPDS) Block I.
•	1800	CRP - Production of prototype hand-held assays to support development of identification technologies for the Airbase/Port (Portal Shield) ACTD and the Joint Biological Point Detection System (JBPDS) Block I.
•	230	IBAD - Continue support of rapid prototype systems, continue installation on Naval ships, and investigate aerosol background of Naval areas of operations.
•	2900	JBPDS - Complete Post-test refurbishment and modification of Block 1 System components.
•	3213	JBPDS - Complete fabrication of IOT&E Block I bio-detection suite components.
•	7076	JBPDS - Complete PPQT for shipboard, fixed-site, S788 shelter and man portable configurations.
•	3900	JBPDS - Complete system integration of USN shipboard and USAF and USN fixed site configurations.
•	2949	JBPDS - Complete system integration of USA S788 shelter and USMC man portable configurations.
•	3900	JBPDS - Conduct IOT&E for USN and USAF fixed site systems and USA S788 system at Dugway Proving Ground.
•	1255	JBPDS - Conduct IOT&E for USN shipboard system and USMC man portable system at Norfolk, VA, and Camp Lejeune, NC.
•	3307	JBPDS - Conduct annual Joint Field Trials at Dugway Proving Ground.
Total	48245	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: BJ5

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	32703	42926	34097
Appropriated Value	32703	41538	
Adjustments to Appropriated Value	-51		
FY 1999 President's Budget	32652	41538	48245

Change Summary Explanation:

Funding: FY1999: Funding increased for the Air Base Port ACTD (+$14000) and the Critical Reagents Program (+$1500) as part of the SECDEF's Quadrennial Defense Review's (QDR) enhancements for selected Counterproliferation programs. Other economic adjustments (-$1352).

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
JP0100 JOINT BIO POINT DETECTION SYSTEM	0	0	0	66162	59856	63933	62627	Cont'd	Cont'd
JPO200 JT BIO REM EARLY WARNING SYS (JBREWS)	0	0	0	0	0	36516	38123	Cont'd	Cont'd
JPO210 CRITICAL REAGENTS PROGRAM (CRP)	0	0	1759	2530	2035	2027	2115	Cont'd	Cont'd
M93001 BIO INTEGRATED DETECTOR SYSTEM (BIDS)	20917	40393	15014	12265	0	0	0	0	88589

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: BJ5

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
ABPACTD												
Fab Residual Systems					X	X	X	X	X	X	X	X
Sim and Modeling	X	X	X	X	X	X	X	X	X	X	X	X
Complete System Integration	X											
Sys Field Test and evaluation				X	X	X	X	X	X	X	X	X
Site Installation and Training								X	X	X	X	X
Fielding (CLS) Support at OCONUS sites							X	X	X	X	X	X
CRP												
Critical Reagent Program Begins				X								
Award Hand Held Assay Contract									X			
CRP Development and Production					X	X	X	X	X	X	X	X
CRP Hand Held Assay Evaluation & QA Test					X	X	X	X	X	X	X	X
IBADS												
Fielding	X	X										
JBPDS												
Start of Work Meeting			X									
Preliminary Design Review					X							
Critical Design Review							X					
Perform EDT								X	X	X		
Perform PPQT										X	X	X
Perform IOT&E												X
Initiate concept analysis for Block II									X	X	X	X
JBREWS												
JBREWS ACTD Architecture Study	X	X	X	X								
Initiate JBREWS ACTD Development	X											
Conduct JBREWS ACTD Demonstration											X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: BJ5

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Development Test and Evaluation	3768	1871	2407
Engineering Design	0	8926	0
Fabrication	3010	18754	22299
Fabrication Hardware	0	0	3213
Hardware Development	7099	3206	2178
Integrated Logistics, Support	231	1499	2117
Operational Test and Evaluation	6988	1852	5155
Production Support	0	0	2900
Program Office Support	900	900	900
Regulatory Affairs	0	697	0
Software Development	0	3833	0
Technical Data/Documentation	9347	0	0
Test & Evaluation	1309	0	7076
Total	32652	41538	48245

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CA5

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CA5 CONTAMINATION AVOIDANCE	50565	47069	44244	56931	21045	7689	5712	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project CA5 CONTAMINATION AVOIDANCE: This project provides EMD of an array of chemical detection and warning systems comprising the basis of Joint Service Program efforts. The Joint Service Point Detection Program will explore leveraging technologies, to include the M22 Automatic Chemical Agent Alarm (ACADA) which is more sensitive and responsive than current detectors with similar applications and is capable of concurrent nerve and blister agent detection, and the CB Mass Spectrometer (CBMS) which identifies chemical and biological agents collected and is a potential component for the Biological Integrated Detection System (BIDS) and the NBC Reconnaissance System. The Joint Service Chemical Agent Detector (JCAD) program will develop a combined portable monitoring and small point chemical agent detector for aircraft, shipboard stand alone and individual soldier applications. The Joint Service Lightweight Standoff Chemical Agent Detector Program (JSLSCAD), utilizing passive infrared technology provides an automatic scanner and stand-off detector capability. The Joint Service Lightweight NBC Reconnaissance System (JSLNBCRS) provides a warning and reporting capability of a NBC hazard for light assault, air bases and expeditionary forces. The Joint Service Warning and Reporting Network (JWARN) will evaluate the current technologies which automate NBC warning collected from detectors in the field and transmit them to adjacent units and command centers. The Multipurpose Integrated Chemical Agent Detector (MICAD) is an integrated component of hardware and software that can process data for use by the JWARN for evaluation and transmitting on the Joint C4I Battlefield and also can be used by stand alone systems. The Shipboard Automatic Liquid Agent Detector (SALAD) is an externally mounted detector that will detect both blister and nerve agents.

Acquisition Strategy:

JWARN	Contract development and integration of software, start Phase II of JWARN program.
JCAD	Contract development and fabrication of test prototypes, contractor/in-house testing, contract fabrication of production units.
ACADA	NDI contract fabrication of test items, in-house testing, contract fabrication of production units with option from multiple sources.
CBMS	Contract development and fabrication of prototype test hardware, in-house testing, in-house platform integration, contract fabrication of production units.
JSLSCAD	Contract development, in-house/contract testing, in-house/contract platform integration, contract fabrication of production units.
SALAD	In house development and in-house/contract fabrication of test prototypes; in-house testing, contract fabrication of production units.
JSLNBCRS	Develop and fabrication of prototypes. Execute option for contract platform integration.
MICAD	Contract development and fabrication of test prototypes, contractor/in-house testing, contract fabrication of production units.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1998
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD) — PROJECT: CA5

FY 1997 Accomplishments:

•	1851	ACADA - Continued support of production and improved ACADA by developing surface sampling capability.
•	10532	CBMS - Designed modifications for Block II CBMS.
•	1802	CBMS - Conducted Biological and Chemical profiling for Block II CBMS.
•	5299	CBMS - Developed Software Documentation/ADA (Military style software).
•	5353	JCAD - Acquired, evaluated and demonstrated prototypes/breadboard units. Prepared and executed contract award effort and Milestone II decision.
•	621	JSLSCAD - USN provided program integration support.
•	1172	JSLSCAD - USN intiated design of shipboard integration.
•	4128	JSLSCAD - Initiated design of EMD hardware for fixed site, ground vehicle and air applications.
•	3305	JSLSCAD - Initiated design of software and program/hardware documentation for all applications.
•	1547	JSLSCAD - Intiated system integration into identified fixed site, ground vehicle and air applications.
•	319	JSLSCAD - Initiated EMD phase.
•	2042	MICAD - Conducted PPT.
•	6626	MICAD - Built test hardware.
•	750	MICAD - Fabricated and inspected installation kits.
•	507	MICAD - System Integration.
•	2388	MICAD - Conducted PPQT.
•	1200	MICAD - Initiated IOT&E.
•	675	JWARN - Initiated EMD.
•	448	SALAD - Completed prototype units, initiated developmental testing.
Total	50565	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CA5

FY 1998 Planned Program:

•	19	ACADA/AVAD - Continue support of Production and fielding planning efforts.
•	1942	CBMS - Complete preliminary design.
•	5826	CBMS - Develop detailed design.
•	1993	CBMS - Fabricate engineering prototypes.
•	1891	CBMS - Develop preliminary detection algorithm.
•	3109	JCAD - Initiate, build and test hardware.
•	2178	JCAD - Initiate and develop software and systems integration for multiple platforms.
•	1227	JCAD - Initiate planning and development of equipment for test/flyoff.
•	958	JCAD - Provide in-house program support.
•	487	JCAD - Plan and prepare documentation for EMD contract award.
•	5	JSLSCAD - Continue USMC program integration support.
•	30	JSLSCAD - Continue USAF program integration support.
•	690	JSLSCAD - Continue USN engineering design for ship applications.
•	5321	JSLSCAD - Complete design of EDT hardware and software for fixed site, ground and air applications.
•	1870	JSLSCAD - Initiate fabrication of EDT units.
•	210	JSLSCAD - Other Program Support.
•	6809	JSLNBCRS - System integration of High Mobility Multi-Purpose Wheeled Vehicle variant(s).
•	2054	MICAD - Fabricate/test/integrate installation kits.
•	690	MICAD - Continue IOT&E.
•	1480	MICAD - Plan and prepare documentation for production contract.
•	450	MICAD - Complete development and conduct MS III type classification IPR.
•	2400	JWARN - Develop Unix/MCS-P version.
•	2400	JWARN - Test Windows 32 version.
•	1988	JWARN - Start Phase II development and intergration.
•	252	SALAD - Complete developmental and operational testing, prepare production contract.
•	790	SBIR/STTR
Total	47069	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)
	PROJECT CA5

FY 1999 Planned Program:

•	5527	CBMS - Develop final design.
•	738	CBMS - Retrofit engineering prototypes.
•	2355	CBMS - Develop final detection algorithm.
•	4045	CBMS - Conduct engineering tests.
•	3549	JCAD - Continue and complete development of test hardware and software to include mission-specific components.
•	2211	JCAD - Initiate and conduct DT&E/flyoff.
•	1721	JCAD - Continue systems integration.
•	1157	JCAD - Continue in-house program management and test support.
•	60	JCAD - Continue development and documentation of technology options for Naval aviation chem/bio defense requirement and concept of operations for aircraft survivability.
•	5	JSLSCAD - Continue USMC program integration support.
•	32	JSLSCAD - Continue USAF program integration support.
•	535	JSLSCAD - Continue USN engineering design for ship applications.
•	1344	JSLSCAD - Complete fabrication of EDT units.
•	6498	JSLSCAD - Complete engineering testing of fixed site, ground and air systems.
•	1250	JSLSCAD - Initiate fabrication of PQT units.
•	7423	JSLNBCRS - System integration of Light Armored Vehicle (LAV) variant.
•	4000	JWARN - Continue Phase II development and integration.
•	1794	JWARN - Conduct DT\OT.
Total	44244	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CA5

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	52045	48652	45384
Appropriated Value	52045	47069	
Adjustments to Appropriated Value	-1480		
FY 1999 President's Budget	50565	47069	44244

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
G47101 JOINT WARNING & REPORTING NETWORK (JWARN)	6960	0	10252	9376	9447	12243	11004	Cont'd	Cont'd
JF0100 JOINT CHEM AGENT DETECTOR (JCAD)	0	0	0	0	0	57547	56641	Cont'd	Cont'd
JX0002 CA SYSTEM FIELDING SUPPORT/SPARES	950	915	1075	1152	2101	2447	2483	Cont'd	Cont'd
M98801 AUTO CHEMICAL AGENT ALARM (ACADA), M22	9744	15324	29858	38728	51609	0	0	0	145263
MA0601 RECON SYSTEM, FOX NBC (NBCRS) MODS	56309	26192	26242	32618	33622	9224	9531	Cont'd	Cont'd
MC0100 JT SVC LTWT NBC RECON SYS (LNBCRS)	0	0	0	0	41884	83336	84043	Cont'd	Cont'd
N00041 SHIPBOARD DETECTOR MODIFICATIONS	7087	5734	9207	9140	9531	8191	7638	Cont'd	Cont'd
S02201 IMPROVED CHEMICAL AGENT MONITOR (ICAM)	3089	9560	9537	13306	13290	0	0	0	48782
S10801 JS LTWT STANDOFF CW AGT DETECTOR (LSCAD)	0	0	0	0	9414	9416	9340	Cont'd	Cont'd

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1998
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD) — PROJECT: CA5

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
S10901 CB MASS SPECTROMETER (CBMS)	0	0	0	0	5689	9416	9339	Cont'd	Cont'd

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CA5

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
CBMS												
BLK I - PPT	X											
BLK I - Prod Decision		X										
BLK I - Prod Contr Awd				X								
BLK I - BIDS P3I DT/OT			X	X								
BLK I - BIDS P3I MS IV (TC-STD)				X	X	X	X	X				
BLK II - Dev Contract Award	X											
BLK II - Preliminary Design Review					X							
BLK II - Critical Design Review							X					
BLK II - Fabricate Engr Prototypes								X	X			
BLK II - Engr Tests									X	X		
JCAD												
JORD		X	X	X								
SAF/AQ MS 0 Approval		X										
Release RFP			X									
Source Selection				X								
Milestone I/II Approval					X							
Award EMD Contract						X						
EMD					X	X	X	X	X	X	X	X
JSLSCAD												
Intiate EMD Phase	X											
Final Engineering Design							X					
Build Test Hardware and Software									X			
Conduct Engineering Test										X		
Conduct Critical Design Review											X	
JSLTNBCRS												
MS I						X						
Prototype Contract						X						
MS II												X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CA5

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
JSLTNBCRS (Cont'd)												
JWARN												
Phase I Interim/Standardization				X								
MS I/III						X						
Contract Award						X						
Verifiction Test						X						
Production and Deployment						X						
Phase I A, B&C						X	X	X				
Phase II Development and Integration						X	X	X	X	X	X	X
DT/OT												X
SALAD												
DT/OT						X						
Production contract award									X			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CA5

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Contractor Engineering/Management Support	19748	10369	9712
Development Test and Evaluation	3106	2567	3066
Engineering Design	2355	1084	2264
Government Engineering Support	2344	1894	1432
Hardware Development	11732	18905	14927
Integrated Logistics, Support	20	20	0
Operational Test and Evaluation	0	80	4045
Program Office Support	788	691	765
Project Development	367	130	1202
Project Management	2053	2350	2375
Regulatory Affairs	0	870	78
Software Development	6099	5923	3594
Technical Data/Documentation	1953	1729	0
Test & Evaluation	0	457	784
Total	50565	47069	44244

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CO5

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
CO5 COLLECTIVE PROTECTION	0	1131	1237	2503	2244	1441	1429	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project CO5 COLLECTIVE PROTECTION: This project provides EMD of Joint Service NBC collective protection systems that are smaller, lighter, less costly to build and maintain and more logistically supportable to enable mission accomplishment in NBC environments. Collective protection platforms include shelters, vehicles, ships, aircraft, buildings and hospitals. Shipboard Collective Protection Equipment (CPE) will provide a contaminant-free environment within specified zone boundaries of high priority ships. Equipment developed under Shipboard CPE is critical to the viability of shipboard CPE due to improved effectiveness and greatly reduced logistics costs.

Acquisition Strategy:

Shipboard CPE — In-house/contract design and fabrication of prototype components with in-house testing. Contractor procurement of systems will be customer (ship platform procured as part of new ship construction using SCN funds) dependent.

FY 1997 Planned Program: No planned program

FY 1998 Planned Program:

- 1111 Shipboard Collective Protection Equipment - Integrate high pressure fan and filter improvements for shipboard use.
- 20 SBIR/STTR

Total 1131

FY 1999 Planned Program:

- 1237 Shipboard Collective Protection Equipment - Complete component integration evaluation and documentation.

Total 1237

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CO5

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	0	1169	1272
Appropriated Value	0	1131	
Adjustments to Appropriated Value	0		
FY 1999 President's Budget	0	1131	1237

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
JF0102 TRANSPORTABLE COLLECTIVE PROTECTION SYSTEM	0	4889	3908	1946	0	0	0	0	10743
JN0012 NAVY SHORE EQUIPMENT	0	0	0	0	1654	2423	3932	Cont'd	Cont'd
JN0014 COLLECTIVE PROT SYS AMPHIB BACKFIT	0	0	0	12647	19380	19300	18260	Cont'd	Cont'd
JX0004 CO SYSTEM FIELDING SUPPORT/SPARES	64	24	0	0	0	0	0	0	88

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
SCPE												
Fabricate prototype equipment								X				
Complete test and evaluation											X	
Fleet Introduction												X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: CO5

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Contractor Engineering/Management Support	0	0	20
Development Test and Evaluation	0	200	400
Hardware Development	0	600	300
Integrated Logistics, Support	0	100	100
Operational Test and Evaluation	0	0	200
Program Office Support	0	11	17
Regulatory Affairs	0	20	0
Technical Data/Documentation	0	200	200
Total	0	1131	1237

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: DE5

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DE5 DECONTAMINATION	0	4838	3923	3906	3891	0	0	0	16558

A. Mission Description and Budget Item Justification:

Project DE5 DECONTAMINATION: This project provides EMD of decontamination equipment for the Joint Service Fixed Site Decontamination (JSFXSD) Program aimed at developing a decontamination capability for airfields, ports, and logistic centers. The goal is to provide soldiers, sailors, marines, and airmen the equipment necessary to fully decontaminate their vital areas to sustain critical cargo flow into theater. Funding is provided for development and testing of critical decontaminants and delivery systems for those decontaminants. Project was supplemented ($4.0M) for JSFXSD in FY99 as a result of the DOD Quadrennial Defense Review (QDR).

Acquisition Strategy: In-house/contractor design, development and fabrication of prototype test hardware.

FY 1997 Planned Program: No planned program

FY 1998 Planned Program:

- 90 JSFXSD - Conduct data and literature search.
- 905 JSFXSD - Conduct Hazard Analysis.
- 645 JSFXSD - Conduct biological agent decontamination field trial.
- 720 JSFXSD - Conduct chemical reaction testing.
- 719 JSFXSD - Conduct aircraft decontamination testing.
- 451 JSFXSD - Complete operational test planning.
- 860 JSFXSD - Conduct initial decontaminant efficiency testing.
- 217 JSFXSD - Conduct chemical agent absorbtion, decomposition, and evaporation testing.
- 150 JSFXSD - Initiate market study.
- 81 SBIR/STTR

Total 4838

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD) — PROJECT: DE5

FY 1999 Planned Program:

- 250 JSFXSD - Conduct life cycle/logistics study.
- 650 JSFXSD - Prepare Test Plans for selected Decon equipment.
- 223 JSFXSD - Prepare solicitation package for test items.
- 2800 JSFXSD - Procure prototypes and conduct DT.

Total 3923

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	0	0	0
Appropriated Value	0	4838	
Adjustments to Appropriated Value	0		
FY 1999 President's Budget	0	4838	3923

Change Summary Explanation:

Funding: FY1998: Congressional adjustment for Joint Service Fixed Site Decontamination program (+$5000) and other Congressional adjustments (-$162). FY1999: Adjustment for Joint Service Fixed Site Decontamination (+$4000) as part of the SECDEF's Quadrennial Defense Review (QDR) enhancements for Counterproliferation programs. Other economic adjustments (-$77).

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
JN0010 JOINT SERVICE FIXED SITE DECON (JSFXD)	0	0	0	0	0	5287	5242	Cont'd	Cont'd

D. Schedule Profile: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: DE5

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Development Test and Evaluation	0	0	2766
Government Engineering Support	0	1145	250
Project Development	0	0	307
Project Management	0	645	0
Regulatory Affairs	0	81	0
Test & Evaluation	0	2967	600
Total	0	4838	3923

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: IP5

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
IP5 INDIVIDUAL PROTECTION	5227	5828	10718	11794	16582	21227	12620	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project IP5 INDIVIDUAL PROTECTION: This project provides EMD of individual protection equipment, such as the Explosive Ordnance Disposal (EOD) ensemble, aimed at maintaining current protection levels while reducing physiological and logistical burdens. The goal is to provide equipment which allows the individual soldier, sailor, airman or marine to operate in a contaminated NBC environment with no or minimal degradation of his/her performance. Funding is provided for: (1) Design of Aircrew Eye-Respiratory Protection (AERP) systems modification kits to install in aircraft, (2) Navy/Marine Aircrew CB Non-Developmental Item (NDI) Respirator System, (3) Completion of Joint Service Lightweight Suit Technology (JSLIST) EMD phase, (4) Joint Service General Purpose Mask program initiation and (5) Joint Service Aviation Mask, (6) Completion of Improved Toxicological Agent Protective (ITAP) suit EMD and (7) Start of the JSLIST P3I program.

Acquisition Strategy: Contract developmental and fabrication of prototype test hardware.

FY 1997 Accomplishments:

- 446 AERP - AC-130U Modification Design.
- 46 AERP - E-8 JSTAR Modification Design.
- 237 AERP - RC-135 Modification Design.
- 551 AERP - In House Program Support.
- 441 Naval Aircrew CB NDI - Initiated first article testing and transitioned into production.
- 440 EOD Ensemble - Continued EMD and support production for joint service program Improved Toxicological Agent Protective (ITAP) Suit.
- 1227 JSLIST - Completed MS III and final specifications for JSLIST.
- 1839 JSLIST P3I - Completed schedule for fabric submission dates for testing and completed Industry market survey.

Total 5227

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD) — PROJECT: IP5

FY 1998 Planned Program:

•	159	AERP - Aircraft Modification Design.
•	86	AERP - In House Program Support.
•	150	JSLIST P3I - Procure prototypes for field evalution.
•	5335	JSLIST P3I - Conduct material screening tests on items received from Industry.
•	98	SBIR/STTR
Total	5828	

FY 1999 Planned Program:

•	632	AERP - Aircraft Modification Design.
•	175	AERP - In House Program Support.
•	3671	Joint Service General Purpose Mask - Primary design and prototype evaluation.
•	492	JSLIST P3I - Procure prototypes for field evalution.
•	4575	JSLIST P3I - Continue field evalution, complete testing analysis and candidate selection, review JSLIST specification for technology insertion.
•	1173	JSLIST P3I - Evaluate and test material candidates for JSLIST P3I Suit, Glove and boot selection for Special Operations Forces for JSLIST specification technology insertion.
Total	10718	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)
	PROJECT IP5

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	3471	6023	9815
Appropriated Value	3471	5828	
Adjustments to Appropriated Value	1756		
FY 1999 President's Budget	5227	5828	10718

Change Summary Explanation:

Funding: FY1997: Funding changes due to reduction for SIBR (-$59) and other economic adjustments (-$24) and reprogramming (+$1839) for JSLIST P3I from BA4, PE 0603884BP, Project IP4 to properly align program.

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
JN0011 AERP AIRCRAFT MODS	0	1408	4117	1971	945	1327	999	Cont'd	Cont'd
JN0013 INDIVIDUAL PROTECTIVE GEAR	0	2046	584	3553	3580	2671	2707	Cont'd	Cont'd
JS0001 CUSTOMS EFFORT	9106	0	0	0	0	0	0	0	9106
JS0002 FIRST RESPONDER	5500	0	0	0	0	0	0	0	5500
JX0001 IP SYSTEM FIELDING SUPPORT/SPARES	1066	965	689	674	96	97	334	Cont'd	Cont'd
M95801 PROTECTION ASSESSMENT TEST SYSTEM (PATS) M41	7556	5423	5376	5543	0	0	0	0	23898
M99401 MASK, TANK	4474	0	0	0	0	0	0	0	4474
M99501 MASK, AIRCRAFT M45	7351	5751	2211	0	0	0	0	0	15313
M99601 MASK, CHEM-BIOLOGICAL PROTECTIVE FIELD:M40/M40A1	5957	5940	16046	10696	1454	0	0	0	40093
MA0400 PROTECTIVE CLOTHING	58825	48976	92010	92740	91305	94822	91551	Cont'd	Cont'd

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: IP5

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
N00020 CB RESPIRATORY SYSTEM - AIRCREW	7244	7572	7390	7696	91	0	0	0	29993

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
AERP												
Allied Mask/Hood Delivery Eff		X										
PADD Award of Contract		X										
PADD Production Effort						X	X	X	X	X		
AERPMODS												
Modify AC-130								X				
Modify RC-135								X				
Modify E-8												X
Modify E-3												X
Modify B-1B								X	X	X	X	X
CBRS-AC												
Contract Award		X										
First Production Option										X	X	X
MS III	X											
PROT CLTH												
JSLIST P3I DT/OT										X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: IP5

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Aircraft Modification Design/Integrations	729	159	632
Contractor Engineering/Management Support	627	0	0
Development Test and Evaluation	800	5335	6748
Engineering Design	0	150	492
Fabrication	0	0	1171
Hardware Development	0	0	1200
Production Support	440	0	0
Program Office Support	551	86	475
Regulatory Affairs	0	98	0
Technical Data/Documentation	1639	0	0
Test & Evaluation	441	0	0
Total	5227	5828	10718

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: MB5

COST *(In Thousands)*	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MB5 MEDICAL BIOLOGICAL DEFENSE	7753	20804	15203	42593	54066	58111	56115	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project MB5 MEDICAL BIOLOGICAL DEFENSE: This project funds the engineering and manufacturing development (EMD) phase of vaccines, drugs and diagnostic medical devices which are directed against validated biological warfare (BW) agents to include bacteria, viruses, and toxins of biological origin. The EMD phase of medical biological defense product development largely involves phase 2 expanded clinical and experimental efforts which evaluate product safety and efficacy. Results from these efforts and those conducted during program definition and risk reduction (PDRR) phase will be used to submit product and establishment applications to the Food and Drug Administration (FDA) for product licensure.

Acquisition Strategy: A prime systems contract was awarded in November 1997 for a single integrator to manage the advanced development, production and storage of biological defense medical products. Involvement by the prime contractor in the EMD phase is critical for the successful development of product safety, efficacy, and production data which the prime submits for FDA product approval.

FY 1997 Accomplishments:

•	2441	Completed source selection for the Prime System Contract, programmatic environmental analysis, and special studies to identify and recommend approaches to legal and regulatory issues that may arise from the JVAP prime contract.
•	1040	Independent oversight of Anthrax Vaccine supplemental testing.
•	90	Continued clinical and non-clinical studies evaluating the protective immunity stimulated by a reduced immunization schedules with Anthrax vaccine.
•	399	Supported the special immunization program at Ft Detrick to protect at risk personnel from exposure to potential BW agents in the laboratory and in the field, and completed study on long term effects of multiple immunizations.
•	350	Awarded Prime Systems Contract to DynPort LLC in November 1997 for Q-fever vaccine Engineering and Manufacturing Design.
•	1588	Conducted non-clinical trials, completed data collection/analysis, and prepared license applications to the FDA for Botulinum pentavalent vaccine.
•	1845	Supported efforts to resolve FDA compliance issues needed to protect DoD Anthrax vaccine stockpile and manufacturing capabilities.
Total	7753	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)	PROJECT MB5

FY 1998 Planned Program:

•	1931	Continue clinical and non-clinical studies evaluating the protective immunity stimulated during a reduced immunization schedule with Anthrax vaccine and compile data for a license amendment.
•	1710	Initiate clinical trials, continue non-clinical trials, and continue data collection/analysis to support license applications to the FDA for Botuilinum pentavalent vaccine.
•	870	Support the special immunization program at Ft Detrick to protect at risk personnel from exposure to potential BW agents in the laboratory and in the field, and maintain capability to continue EMD for de-speciated Botulinum antiserum.
•	15944	Continue efforts by the Prime Systems Contractor on EMD of Q-fever vaccine, prepare for the transition from advanced development of Tularemia vaccine and Vaccinia vaccine and initiate a capability for consistency vaccine lot production.
•	349	SBIR/STTR
Total	20804	

FY 1999 Planned Program:

•	11451	Continue EMD efforts related on Q-fever vaccine, begin EMD efforts on Tularemia vaccine and Vaccinia vaccine, and maintain a capability for consistency vaccine lot production.
•	1172	Complete clinical and non-clinical studies evaluating the protective immunity stimulated during a reduced immunization schedule with Anthrax vaccine and submit application for license amendment.
•	1710	Continue clinical trials to complete data collection/analysis to submit license applications to the FDA for Botulinum pentavalent vaccine.
•	870	Support the special immunization program at Ft Detrick to protect at risk personnel from exposure to potential BW agents in the laboratory and in the field, and maintain capability to contiune EMD for de-speciated Botulinum antiserum.
Total	15203	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: MB5

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	9044	16500	15646
Appropriated Value	9044	20804	
Adjustments to Appropriated Value	-1291		
FY 1999 President's Budget	7753	20804	15203

Change Summary Explanation:

Funding: FY1997: Reallocated (-$1000) to Project BJ5 for acceleration of the Air/Base Port Advanced Concept Technical Demonstration (ACTD) efforts. Funding change due to SIBR (-$157) and other economic adjustments (-$134). FY1998: Congressional adjustment for Medical Biological vaccines development (+4500) and other Congressional adjustments (-$196).

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
JX0005 JOINT VACCINE ACQUISITION PROGRAM (JVAP)	11837	23556	11074	18547	20713	25913	31163	Cont'd	Cont'd

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
MEDBIO												
Award Contract-Anthrax Vaccine						X						
Botulinum toxoid vac licensure effort							X					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 5 - Engineering and Manufacturing Dev	PE NUMBER AND TITLE 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)	PROJECT MB5

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Fabrication	0	15944	11451
Program Office Support	350	0	0
Regulatory Affairs	4376	3990	2882
Technical Data/Documentation	399	870	870
Test & Evaluation	2628	0	0
Total	7753	20804	15203

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: MC5

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MC5 MEDICAL CHEMICAL DEFENSE	206	5094	1742	775	1155	1539	1619	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project MC5 MEDICAL CHEMICAL DEFENSE: This project funds the development of medical materiel and other medical equipment items necessary to provide an effective capability for medical defense against chemical agent threats facing U.S. forces in the field. This project supports research efforts in the engineering and manufacturing development phases of the acquisition strategy for pretreatment theraputic drugs, diagnostic equipment, and other life support equipment for protection against and management of chemical warfare agents.

Acquisition Strategy: Test and evaluate in-house and commercially developed products in government managed trials.

FY 1997 Accomplishments:

- 206 Prepared New Drug Application (NDA) for topical skin protectant (TSP).

Total 206

FY 1998 Planned Program:

- 1065 Initiate human exercise performance, definitive effectiveness studies and stability testing for cyanide pretreatment.
- 1150 Submit NDA and initiate stability testing for TSP.
- 15 Initiate Convulsant Antidote Nerve Agent (CANA) long-term stability testing.
- 884 Complete testing and development of Multichambered Autoinjector.
- 1895 Conduct type classification of CB collective protection shelter.
- 85 SBIR/STTR

Total 5094

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: MC5

FY 1999 Planned Program:

•	52	Conduct stability testing and respond to regulatory requirements for multichamber autoinjector.
•	13	Complete CANA long-term stability testing.
•	449	Update of regulatory documents and conduct LRIP for TSP after NDA approval.
•	1228	Conduct large-scale effectiveness and safety studies for cyanide pretreatment.
Total	1742	

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	213	5265	1792
Appropriated Value	213	5094	
Adjustments to Appropriated Value	-7		
FY 1999 President's Budget	206	5094	1742

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary:

	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	To Compl	Total Cost
R12301 CB PROTECTIVE SHELTER (CBPS)	5217	19841	16544	14591	15503	17369	17298	Cont'd	Cont'd

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: MC5

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
CBPS												
Logistics Test				X								
OT&E		X										
FUE								X				
MEDCHEM												
Topical Skin Protectant - File NDA						X						
CBPS - TC Milestone III							X					
Topical Skin Protectant - Milestone III									X			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-3 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Dev

PE NUMBER AND TITLE: 0604384BP CHEMICAL/BIOLOGICAL DEFENSE (EMD)

PROJECT: MC5

A. Project Cost Breakdown:	FY 1997	FY 1998	FY 1999
Operational Test and Evaluation	26	4580	1210
Project Development	91	102	82
Project Management	72	302	245
Regulatory Affairs	17	110	205
Total	206	5094	1742

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)

COST (*In Thousands*)		FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
	Total Program Element (PE) Cost	19339	18141	24922	22430	22853	23303	23713	Continuing	Continuing
AT6	ANTI-TERRORISM	0	3586	2952	486	484	481	480	Continuing	Continuing
DT6	JOINT TRAINING AND DOCTRINE SUPPORT	0	0	3652	3631	3631	3631	3631	Continuing	Continuing
DW6	DUGWAY PROVING GROUND	11017	8979	10370	10403	10737	10947	11180	Continuing	Continuing
MS6	MANAGEMENT SUPPORT	6801	3941	6286	6270	6377	6482	6615	Continuing	Continuing
O49	JOINT POINT TEST	1521	1635	1662	1640	1624	1762	1807	Continuing	Continuing

Mission Description and Budget Item Justification: This program element provides support to DoD response to Chemical/Biological (CB) terrorism, funds the Joint CB Contact Point and Test, and the management and support program. It also funds sustainment of a technical test capability at Dugway Proving Ground.

Funding for Anti-terrorism provides DoD with a process and means to conduct assessments of installation vulnerabilities to Chemical/Biological threats.

Joint Training and Doctrine Support funds development of Joint Doctrine and Tactics, Techniques, and Procedures for newly developing Chemical Biological defense systems.

Funding for Dugway Proving Ground provides for Chemical Biological Defense testing of DoD material, weapons and weapon systems from concept through production. It finances indirect test operating costs not billable to test customers, maintenance cost of test facilities, replacement of test equipment. This program includes research and development effort directed toward support of installations or operations required for general research and development use.

The management support program provides management support for the DoD Chemical Biological defense program to allow program overview and integration of overall medical and non-medical programs by the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs), financial management support by the Ballistic Missile Defense Organization (BMDO), integration of Joint requirements, management of training and doctrine by the Joint Service Integration Group (JSIG), Joint Research, Development and Acquisition (RDA) planning, input to annual report to Congress and Program Objective Memorandum (POM) Strategy development by the Joint Service Materiel Group (JSMG).

The objectives of the CB Contact Point and Test program are to plan, conduct, evaluate, and report on joint tests (for other than developmental hardware) and accomplish operational research assessments in response to requirements received from the Services. This program will provide ongoing input to the Services for development of doctrine, policy, training procedures, and feedback into the RDT&E cycle and therefore appropriate to Budget Activity 6.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)

PROJECT: AT6

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
AT6 ANTI-TERRORISM	0	3586	2952	486	484	481	480	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project AT6 ANTI-TERRORISM: The growing threat of the use of Chemical/Biological agents in an act of terrorism places the United States Armed Forces installations and personnel at risk. This project provides DoD a process and means to conduct assessments of installations' vulnerabilities to Chemical/Biological threats as relates to anti-terrorism. The knowledge gained is to be integrated into training to be provided to the U.S. forces both in CONUS and overseas. Funding added in response to DoD Directive 2000.12, "DoD Combating Terrorism Program," dated September 15, 1996 and the Downing Task Force Report, "Global Interests/Global Responsibilities," dated September 16, 1996.

FY 1997 Planned Program: No planned program

FY 1998 Planned Program:

- 1502 Develop a process for assessing an installation's vulnerability to Chemical/Biological threats.
- 1527 Establish a team to conduct assessments and conduct vulnerability assessments at various DoD installations.
- 497 Develop and conduct training in response to Chemical/Biological threats.
- 60 SBIR/STTR

Total 3586

FY 1999 Planned Program:

- 875 Implement JSIVA Augmentation.
- 500 Build Training Inserts III&IV.
- 375 Sustain Training Inserts I&II.
- 616 Conduct planning and coordination - Training/Instructional Exercise.
- 305 Conduct Instructional Vulnerability Exercises.
- 281 Update Stds & Review Installation WMD vulnerability Implementation Plans.

Total 2952

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)

PROJECT: AT6

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	0	3688	3010
Appropriated Value	0	3586	
Adjustments to Appropriated Value	0		
FY 1999 President's Budget	0	3586	2952

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary: N/A

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
AT												
Develop assessment process					X							
Initiate Conduct of assessment						X						
Provide self-assessment standards									X			
Establish Long-term training program										X		
Conduct follow-on assessments												X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)

PROJECT: DT6

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DT6 JOINT TRAINING AND DOCTRINE SUPPORT	0	0	3652	3631	3631	3631	3631	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project DT6 JOINT TRAINING AND DOCTRINE SUPPORT: The activities of this project directly support the Joint Service Chemical Biological (CB) Defense Program. This effort (1) funds preparation of Joint Doctrine and Tactics, Techniques, and Procedures (TTP) for newly developing CB Defense Systems; (2) supports the US Army Chemical School (USACMLS) Joint Senior Leaders' Course (JSLC); (3) provides funds to help correct training and doctrine deficiencies covered in GAO Reports; (4) funds for contract support to assist the Nuclear, Biological, Chemical (NBC) Defense Joint Service Integration Group (JSIG) accomplish its new mission to "Survey the CINCs and Services to provide a database of current and planned NBC Defense studies, analyses, models and simulations, training, exercises, and wargames; to determine overlaps, duplication, and shortfalls; and to build and execute programs to correct shortfalls in all aspects of NBC Defense". Funds will be provided to and managed by the JSIG.

FY 1997 Planned Program: No planned program

FY 1998 Planned Program: No planned program

FY 1999 Planned Program:

- 1064 Combination of in-house and contract effort to prepare Joint Doctrine and TTP for newly developing Joint NBC Defense Systems [e.g., Joint Warning and Reporting Network (JWARN), Joint Chemical Agent Detector (JCAD), Joint Service Lightweight Stand-off Chemical Agent Detector (JSLSCAD), Joint Biological Point Detection System (JBPDS)]; update of existing Joint doctrinal and multi-Service NBC Defense products; and review of all Joint publications as they are being developed to ensure that NBC is addressed.
- 2538 In-house and contractor effort to correct Joint NBC Defense training and doctrine deficiencies resulting from GAO Reports, the Army Chemical School Training Action Plan and other sources. Results of the FY 1998 JCS Training, Studies, and Analysis contractor effort to" Survey the CINCs NBC Defense efforts and Programs in the NBC Defense Area" will provide definition, showing how to best use these funds.
- 50 Funds to support additional joint participation in the USACMLS Joint Senior Leader Course (JSLC), conducted three times annually. Funds support presentations by high-level DOD and other government agency experts in NBC Defense, course conduct to include training at the live-agent Chemical Defense Training Facility (CDTF) and travel/per-diem for students from all Services.

Total 3652

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)
	PROJECT DT6

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	0	0	0
Appropriated Value	0	0	
Adjustments to Appropriated Value	0		
FY 1999 President's Budget	0	0	3652

Change Summary Explanation:

Funding: FY1999: Adjustment for Doctrine and Training (+$3000) as part of the SECDEF's Quadrennial Defense Review (QDR) enhancements for Counterproliferation programs. Transfer of (+$652) from PE 0605384BP, Project MS6 for Doctrine and Training.

Schedule: Program initiated in FY99 as part of the SECDEF's Quadrennial Defense Review (QDR) Enhancements for Counterproliferation Programs.

Technical:

C. Other Program Funding Summary: N/A

D. Schedule Profile: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)

PROJECT: DW6

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
DW6 DUGWAY PROVING GROUND	11017	8979	10370	10403	10737	10947	11180	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project DW6 DUGWAY PROVING GROUND: Project provides a technical capability for testing DoD material, weapons and weapon systems from concept through production. It finances indirect test operating costs not billable to test customers, maintenance cost of test facilities, and replacement of test equipment. Projects programmed for testing at DPG include: Long Range Biological Stand Off Detection System (LRBSDS), integrated biological detection (point detector) system, Biological Aerosol Warning System (BAWS).

FY 1997 Accomplishments:

- 5819 Provided direct test support labor.
- 4185 Provided contract support.
- 460 Financed indirect operating costs.
- 425 Maintained test facility.
- 128 Financed restructuring of personnel.

Total 11017

FY 1998 Planned Program:

- 5320 Provide direct test support labor.
- 2618 Provide contract support.
- 452 Finance indirect operating costs.
- 438 Maintain test facility.
- 151 SBIR/STTR

Total 8979

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)
	PROJECT DW6

FY 1999 Planned Program:

- 5336 Provide direct test support labor.
- 4079 Provide contract support.
- 509 Finance indirect operating costs.
- 446 Maintain test facility.

Total 10370

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	11386	9280	9583
Appropriated Value	11386	8979	
Adjustments to Appropriated Value	-369		
FY 1999 President's Budget	11017	8979	10370

Change Summary Explanation:

Funding: FY 1999: Increased to support development test requirements of key chemical/biological systems (+$787).

Schedule:

Technical:

C. Other Program Funding Summary: N/A

D. Schedule Profile:

	FY 1997				FY 1998				FY 1999			
	1	2	3	4	1	2	3	4	1	2	3	4
DPG Project Continuing.	X	X	X	X	X	X	X	X	X	X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)

PROJECT: MS6

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
MS6 MANAGEMENT SUPPORT	6801	3941	6286	6270	6377	6482	6615	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project MS6 MANAGEMENT SUPPORT: This project provides management support for the DoD NBC defense program. It provides program overview and integration of overall medical and non-medical programs by the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs), financial management support by the Ballistic Missile Defense Organization (BMDO); and integration of Joint requirements, training and doctrine by the Joint Service Integration Group (JSIG). It also provides Joint Research Development Acquisition (RDA) planning, input to annual report to Congress and Program Objective Memorandum (POM) Strategy development by the Joint Service Materiel Group (JSMG), and programming support for the Joint Service Chemical Biological Information System (JSCBIS).

FY 1997 Accomplishments:

- 200 Provided funding distribution and execution review/BMDO (Ballistic Missile Defense Organization) financial management.
- 2063 Defense Business Operating Fund reimbersible services, contract termination costs, etc.
- 950 Developed assessments to support the Joint Modernization Plan, provide analytic support for development of Joint Requirements, training and doctrine documentation and respond to specialized evaluation studies throughout the PPBS process.
- 1905 Developed FY98-03 POM Strategy, Research, Development and Acquisition (RDA) Plan, conducted execution review with budget formulation and recommendation, completed Industrial Base Assessment and initiated Logistic Support Plan.
- 1533 Performed program oversight, assessment, and policy development.
- 150 Provided JSCBIS database support.

Total 6801

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT) PROJECT MS6

FY 1998 Planned Program:

•	200	Provide funding distribution and execution review/BMDO (Ballistic Missile Defense Organization) financial management.
•	916	Develop Joint Requirements, training and doctrine documentation and Joint Modernization Plan.
•	1747	Develop assessments to support RDA Plan. Provide analytic programmatic support for development of POM Strategy, the Budget Estimate Submit (BES), and the President's Budget (PB) submissions. Respond to specialized evaluation studies throughout the PPBS process.
•	837	Perform program review/assessments, provide programmatic PPBS oversight/analysis, and provide Congressional issue analysis and support.
•	175	Provide JSCBIS database support.
•	66	SBIR/STTR
Total	3941	

FY 1999 Planned Program:

•	295	Provide funding distribution and execution review/BMDO (Ballistic Missile Defense Organization) financial management.
•	1560	Develop Joint Requirements and Joint Modernization Plan. Monitor development of Joint doctrine and training documentation.
•	2615	Develop assessments to support RDA Plan. Provide analytic programmatic support for development of POM Strategy, the Budget Estimate Submit (BES), and the President's Budget (PB) submissions. Respond to specialized evaluation studies throughout the PPBS process.
•	1628	Perform program review/assessments, provide programmatic PPBS oversight/analysis, provide JSCBIS database support, and provide Congressional issue analysis and support.
•	188	Provide JSCBIS database support.
Total	6286	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998	
BUDGET ACTIVITY 6 - Management Support	PE NUMBER AND TITLE 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)	PROJECT MS6

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	3407	4073	3390
Appropriated Value	3407	3941	
Adjustments to Appropriated Value	3394		
FY 1999 President's Budget	6801	3941	6286

Change Summary Explanation:

Funding: FY1997: Adjustment of CBDP program management to support expanded requirements in overall management and integration of medical requirements (+$1181) and DBOF actions (+2213). FY1999: Adjustment of CBDP program to support expanded requirements in overall management and integration of medical requirements (+$2896).

Schedule:

Technical:

C. Other Program Funding Summary: N/A

D. Schedule Profile: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management Support

PE NUMBER AND TITLE: 0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)

PROJECT: O49

COST (*In Thousands*)	FY 1997 Actual	FY 1998 Estimate	FY 1999 Estimate	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	Cost to Complete	Total Cost
O49 JOINT POINT TEST	1521	1635	1662	1640	1624	1762	1807	Continuing	Continuing

A. Mission Description and Budget Item Justification:

Project O49 JOINT POINT TEST: The objectives of the CB Contact Point and Test program are to plan, conduct, evaluate, and report on joint tests (for other than developmental hardware) and accomplish operational research assessments in response to requirements received from the Services. This program will provide ongoing input to the Services for development of doctrine, policy, training procedures, and feedback into the RDT&E cycle.

FY 1997 Accomplishments:

- 626 Conducted six assessments evaluating performance and procedures in a chemical environment.
- 590 Conducted three field trials evaluating performance and procedures in a chemical environment.
- 305 Conducted two laboratory tests evaluating performance and procedures in a chemical environment.

Total 1521

FY 1998 Planned Program:

- 662 Conduct assessments evaluating performance and procedures in a chemical environment.
- 625 Conduct field trials evaluating performance and procedures in a chemical environment.
- 321 Conduct laboratory tests evaluating performance and procedures in a chemical environment.
- 27 SBIR/STTR

Total 1635

FY 1999 Planned Program:

- 687 Conduct assessments evaluating performance and procedures in a chemical environment.
- 643 Conduct field trials evaluating performance and procedures in a chemical environment.
- 332 Conduct laboratory tests evaluating performance and procedures in a chemical environment.

Total 1662

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998

BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
6 - Management Support	0605384BP CHEMICAL/BIOLOGICAL DEFENSE (MANAGEMENT SUPPORT)	O49

B. Project Change Summary:

	FY 1997	FY 1998	FY 1999
FY 1998 President's Budget	1572	1689	1694
Appropriated Value	1572	1635	
Adjustments to Appropriated Value	-51		
FY 1999 President's Budget	1521	1635	1662

Change Summary Explanation:

Funding:

Schedule:

Technical:

C. Other Program Funding Summary: N/A

D. Schedule Profile: N/A

DEFENSE INFORMATION SYSTEMS AGENCY

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Defense Information Systems Agency
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
21	0305108K	Command and Control Research	2	1,814	1,874	1,961	U
	Applied Research			1,814	1,874	1,961	
93	0604764K	Advanced IT Services Joint Program Office	5			15,588	U
	Engineering and Manufacturing Development					15,588	
117	0605801K	Defense Technical Information Services (DTIC)	6			46,469	U
	RDT&E Management Support					46,469	
123	0208045K	C3 Interoperability	7	24,391	24,913	26,296	U
127	0302016K	National Military Command System-Wide Support	7	1,950	1,688	1,189	U
128	0302019K	Defense Info Infrastructure Engineering and	7	4,531	4,119	4,975	U
129	0303126K	Long-Haul Communications (DCS)	7	22,613	13,693	11,561	U
130	0303127K	Support of the National Communications System	7	3,808	4,405	4,428	U
131	0303129K	Defense Message System	7	1,353			U
132	0303131K	Minimum Essential Emergency Communications	7	2,208	2,242	3,061	U
135	0303149K	C4I for the Warrior	7			3,675	U
136	0303153K	Joint Spectrum Center	7			8,839	U
	Operational Systems Development			60,854	51,060	64,024	
Total	Defense Information Systems Agency			62,668	52,934	128,042	

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RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/02					**R-1 ITEM NOMENCLATURE** C2 Research/P.E. 0305108K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Command and Control Research/A10		1.814	1.874	1.961	2.000	2.050	2.081	2.119	Contg	Contg

A. Mission Description and Budget Item Justification:

This program element represents DISA's portion of a joint DISA/multi-service effort that supports research into emerging technologies, methodologies and theories of military command and control (C2), the application of research results to resolve the problems of C2 associated with joint operations and the optimal use of MILDEP laboratory resources. Accordingly, this program element is located in Budget Activity 02. The C2 research program was initiated to develop C2 as a scientific discipline, foster joint service techbase cooperation and demonstrations and develop a C2 curriculum for DOD.

The project supports command and control basic research and applied research. The project consists of research and studies for high level issues in command and control, and the development of curricula for National Defense University, Naval Post Graduate School and the Service War colleges. It addresses joint techbase issues including joint distributed ADP, Joint War Gaming, and technology sharing.

FY1997 Accomplishments:

- Continued coordinating and managing the Joint Service C3 Science and Technology Programs and developing an annual Joint Service Plan for C3 Research. Supported development and execution of the Deputy Director of Research and Engineering (DDR&E) Advanced Concepts Technology Demonstrations (ACTDs) using the Joint Warfare Information Demonstrations (JWID). (2nd Qtr - 3rd Qtr) ($400K)
- Continued demonstrations within the Global Grid testbed environment of Distributed Computing Environment(DCE) capabilities in Multi-Media Security and fusion. Incorporated research into JWID arena for demonstration. (3rd Qtr - 4th Qtr) ($240K)
- Continued C3 Decision Aids and Data Fusion Symposia and the information exchange through the Technical Panels for C3 (TPC3) subpanels. Formalized the expansion into the international arena. Held first international Symposia in Europe. (3rd Qtr - 4th Qtr) ($315K)
- Continued basic and applied research in C2 architecture's theory and analysis tools. Continued basic research in Conditional Event Probability Algebraic Logic and its application to the C3 process. (3rd Qtr - 4th Qtr) ($509K)

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/02					**R-1 ITEM NOMENCLATURE** C2 Research/P.E. 0305108K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Command and Control Research/A10		1.814	1.874	1.961	2.000	2.050	2.081	2.119	Contg	Contg

FY1997 Accomplishments (Cont'd):

- Continued C2 curricula for National Defense University and other DOD schools and analyses and studies of high level C3 issues (4th Qtr - 4th Qtr) ($350K) $1.814M Total

FY1998 Plans:

- Continue C3 Decision Aids Data Fusion Symposia. Continue to formalize the international expansion of the Symposia effort. Host the second international C3 Symposia in Europe/UK. (3rd Qtr - 4th Qtr) ($375K)
- Continue development of the C2 reference model and its application. (4th Qtr - 4th Qtr) ($240K)
- Continue basic and applied research in C2 architecture's theory and analysis capability. Develop applications for analyses and tools. (2nd Qtr - 3rd Qtr) ($530K)
- Continue development of C2 and Information Warfare related curricula for National Defense University and other DOD schools. (3rd Qtr - 4th Qtr) ($385K)
- Continue analysis and studies of C3 and Information Warfare high level issues. Continue with the establishment of the Advanced Concepts Technology (ACT) program as the DOD center of excellence for lessons learned. (2nd Qtr - 3rd Qtr) ($344K) $1.874M Total

FY1999 Plans:

- Continue C3 Decision Aids/Data Fusion Symposia. Continue to formalize the international expansion of the Symposia effort. Host the third international C3 Symposia in Europe/UK. (3rd Qtr - 4th Qtr) ($380K)
- Continue development of the C2 reference model and its application. (4th Qtr - 4th Qtr) ($190K)
- Continue basic and applied research in C2 architecture's theory and analysis capability. Develop applications for analyses and tools. (3rd Qtr - 4th Qtr) ($430K)
- Continue development of C2 and Information Warfare related curricula for National Defense University and other DOD schools. (3rd Qtr - 4th Qtr) ($476K)
- Continue analysis and studies of high level C3 and Information Warfare issues. (3rd Qtr - 4th Qtr) ($485K) $1.961M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/02					**R-1 ITEM NOMENCLATURE** C2 Research/P.E. 0305108K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Command and Control Research/A10		1.814	1.874	1.961	2.000	2.050	2.081	2.119	Contg	Contg

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	1.814	1.937	2.013
Appropriated Value	1.856	1.937	
Adjustments to Appropriated Value	-.042	-.063	
Adjustments to Budget Year since FY 1998 President's Budget			-.052
Current Budget Submit/President's Budget (FY 1999)	1.814	1.874	1.961

Change Summary Explanation:
Funding: FY97 change due to below threshold reprogramming.
FY98 change due to Congressional adjustments to the Defense-wide Investment Appropriation.
FY99 change due to revised fiscal guidance.

C. Other Program Funding Summary: N/A

D. Schedule Profile
(U) FY1997
Contract/study delivered 3rd quarter FY97
(U) FY1998
Contract/study delivered 3rd quarter FY98
(U) FY1999
Contract/study delivered 3rd quarter FY99

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RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE: February 1998

APPROPRIATION/BUDGET ACTIVITY
RDT&E, Defense Wide/05

R-1 ITEM NOMENCLATURE
PE 0604764K / Advanced Information Technology Services Joint Program Office (AITS-JPO)

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Leading Edge Pilot Information Technology/T26		0	0	15.588*	15.420	15.339	15.253	15.171	Contg	Contg

A. Mission Description & Budget Item Justification: The Advanced Information Technology Services Joint Program Office (AITS-JPO), a joint DARPA/DISA office, facilitates the transition of DARPA's substantial information systems technology research into DISA's operational support of the warfighter. The AITS-JPO, among other functions: (a) provides advanced technology demonstrations and collaboration capabilities for R&D and Battle Lab communities; (b) engineers and reinforces components for "leave-behind" and transition into the Defense Information Infrastructure (DII), including the Global Command and Control System (GCCS) and Global Combat Support System (GCSS); (c) augments transitioning products with improved security, scalability, and DII compliance; and (d) provides advanced, hardened capabilities ("Leading Edge Services") to selected operational beta test sites. As a result, this program element is under Budget Activity 5. Leading Edge Services are information transport and value added services not available from the DII and for which customers are willing to assume some of the risk associated with development and initial deployment. These services include information processing, storage, and retrieval; communications (voice, data, video, multimedia); and security technology and applications in command, control, and intelligence for the worldwide DOD communities.

(U) FY 1999 Plans:

o Develop, harden and transition an initial capability for rapid Courses of Action/Time-Phased Force Deployment Data (COA/TPFDD) general, TPFDD/OPLAN readiness and distributed assessment for GCCS 4.0 with a focus on Joint Staff Joint Operating Planning and Execution System / Crises Action Planning and Execution (JOPES/CAPE) reengineering (2nd Qtr - 4th Qtr; $2,800K).

o Integrate web-based collaboration, logistics Common Operational Picture (COP) enhancements and synchronized ops/log planning into the GCSS Cluster. Support transition of Joint Logistics Advanced Concept Technical Demonstration (ACTD) to Advanced Common Operating Environment (COE)/GCSS infrastructure (2nd Qtr - 4th Qtr; $3,000K).

o Integrate an advanced information environment into the DII COE 4.0 which will permit "plug and play" introduction of new capabilities and information sharing across diverse networks in support of joint planning and execution (3rd Qtr - 4th Qtr; $1,588K).

o Focus on high-performance, secure, distributed Common Object Request Broker Architecture (CORBA) services implementation and on integrating broadcast and conventional webs (e.g., Intelink, SIPRnet) (3rd Qtr - 4th Qtr; $2,260K).

o Provide an enhanced common operational picture which includes broadcast COP, multimedia & video services, reach-back archiving & C4I systems integration with Information Dissemination Management (IDM) services (3rd Qtr - 4th Qtr; $1,980K).

* This project is not a new start. This project was realigned from PE 0303126K, Long Haul Communications, project E26.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)

DATE: February 1998

APPROPRIATION/BUDGET ACTIVITY
RDT&E, Defense Wide/05

R-1 ITEM NOMENCLATURE
PE 0604764K / Advanced Information Technology Services Joint Program Office (AITS-JPO)

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Leading Edge Pilot Information Technology/T26		0	0	15.588*	15.420	15.339	15.253	15.171	Contg	Contg

o Focus on continuous collaborative plan and workflow management, on quantum improvement of the types of distributed planning and assessment capabilities offered in Common Operating Modeling Planning and Simulation Strategy (COMPASS), and on transition of the Joint Composite Strike Element (JCSE) ACTD to multiple service systems (2nd Qtr - 4th Qtr; $1,800K).

o Provide the basis for integrating C4I and simulation by High Level Architecture (HLA)-compliant collaborative modeling services accessible by C4I applications through the object and multicast infrastructure (2nd Qtr - 4th Qtr; $2,160K).

Total $15.588M

Acquisition Strategy: Develop and implement statements of work and task orders to support FFRDC and SETA Contracts.

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)			0*
Appropriated Value			
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY98 President's Budget			+15.588
Current Budget Submit/President's Budget (FY99)			15.588

Change Summary Explanation:
FY99 adjustment due to realignment of project from PE 0303126K and increased emphasis in this area by the Department of Defense.

C. Other Program Funding Summary: N/A

D. Schedule Profile

(U) FY 1999

2nd Quarter - Integrate DARPA joint applications and elements of the Distributed Joint Task Force Architecture and Information Management into the DII to accelerate progress toward the Joint Staff's Advanced Battlefield Information System (ABIS) vision:

* This project is not a new start. This project was realigned from PE 0303126K, Long Haul Communications, project E26.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/05	**R-1 ITEM NOMENCLATURE** PE 0604764K / Advanced Information Technology Services Joint Program Office (AITS-JPO)

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Leading Edge Pilot Information Technology/T26		0	0	15.588*	15.420	15.339	15.253	15.171	Contg	Contg

D. Schedule Profile Continued

(U) FY 1999

2nd Quarter

-- accommodate battlefield awareness, command and control, and modeling and simulation R&D initiatives;
-- align DARPA's C4I architecture approach with DII evolution; and
-- facilitate maintenance by adapting interfaces to an emerging commercial marketplace.

4th Quarter - Establish a "Virtual Collaboratory," under the auspices of the AITS-JPO, to assist Defense Agencies and Service R&D organizations in integrating advanced C4I applications and technology onto the evolving DII and to support Joint Battle Lab and Joint Warfighting Center evaluations of proposed technology.

4th Quarter - Complete first-year expansion of the AITS-JPO mission to a greater role in DII technology risk reduction:
-- Provide "Advanced Information Technology Services" for the R&D and Battle Lab communities at twice FY98 levels;
-- Engineer and reinforce GCCS and GCSS Leading Edge Services for operational evaluation at twice FY98 levels; and
-- Augment transitioning products with improved security, scalability, and DII compliance

* This project is not a new start. This project was realigned from PE 0303126K, Long Haul Communications, project E26.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/05	**R-1 ITEM NOMENCLATURE** PE 0604764K / Advanced Information Technology Services Joint Program Office (AITS-JPO)

A: Project Cost Breakdown ($Millions)

	FY97	FY98	FY99
Project Cost Categories			
Modeling & Simulation	0	0	15.588*
Total			15.588

B: Budget Acquisition History and Planning Information:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY99	Budget FY99	Budget To Complete	Total Program
Houston	C-CPAF	02/98				5.000	Contg	Contg
MITRE	C-CPFF	TBD				6.000	Contg	Contg
SAIC	C-CPAF	05/97				3.000	Contg	Contg
All Other Contracts						1.588	Contg	Contg
TOTAL PROJECT						15.588		

* This project is not a new start. This project was realigned from PE 0303126K, Long Haul Communications, project E26.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					R-1 ITEM NOMENCLATURE Defense Technical Information Services / 0605801K					
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total Program Element Cost				46.469	46.702	45.532	44.777	44.120	Cont.	Cont.
001 Defense Technical Information Center				34.324	34.504	33.275	32.299	31.378	Cont.	Cont.
002 Information Analysis Centers				12.145	12.198	12.257	12.478	12.742	Cont.	Cont.

A. **Mission Description and Budget Item Justification**: The Defense Technical Information Services Program Element provides resources for the Defense Technical Information Center (DTIC) and the DoD Information Analysis Centers (IACs). DTIC's mission and function is to provide for the centralized operation of DoD Services for the acquisition, storage, retrieval, and dissemination of Scientific and Technical Information (STI), including data which is restricted, controlled and/or classified. DTIC also functions as the central activity within the DoD for exploring and applying advanced techniques and technology to DoD STI systems and for developing improvements in service and STI transfer effectiveness, and administratively manages the IAC program. DTIC's concept of operations is to function as the "front" door to DoD unclassified and unlimited information resources for customers internal and external to DoD; as the door to controlled information resources for internal DoD use; and as a repository and processor for STI. The IACs, each devoted to a particular technology area, are part of the program to share information resources in a coordinated manner and further leverage the technology base by maintaining a staff of subject experts to provide in-depth analysis and to create specialized technical information products. The maintenance of a centralized program is a cost effective and efficient means to provide access to and transfer information among DoD personnel, DoD contractors and potential contractors, and other federal agencies and their contractors. The Program Element is under BA 6, Mission Support, which provides for the support of operations required for use in general research and development and not allocable to specific missions.

* Projects under this Program Element are not new starts. As part of the Defense Reform Initiative, management control of DTIC was transferred from the Director, Defense Research and Engineering to the Director, Defense Information Systems Agency.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					**R-1 ITEM NOMENCLATURE** Defense Technical Information Services / 0605801K					
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
001 Defense Technical Information Center				34.324	34.504	33.275	32.299	31.378	Cont.	Cont.

Mission Description and Budget Item Justification: DTIC collects or electronically connects to sources of information generated by the DoD or information relevant to its mission. DTIC's collection efforts reflect the immediate and long-term information needs of the DoD community. The primary focus is on acquiring current documentation and management summaries to support a DoD component's mission responsibility. DTIC acquires scientific, technical, engineering, management, studies and analysis, and other types of information, in any media or format, which meets the needs of the Defense community. That information is then disseminated electronically, on paper, or on other physical media, to others in DoD to help accomplish DoD-related business. DTIC's holdings include technical reports, management summaries at the work unit level, Independent Research and Development summaries, and special collections such as captured German and Japanese documents that date back to World War II. DTIC's role is to ensure that all significant or technological observations, findings, recommendations and results derived from DoD endeavors are accessible to authorized users. For the United States to maintain its readiness and competitiveness with the industrialized nations, such scientific and technical information must be readily available and easily transferable. DTIC is moving aggressively to fully exploit the benefits of electronically disseminating its internal collection as well as developing tools to access external databases, and to reach end users (scientists, engineers, R&D managers, etc.) in rapidly increasing numbers. Using the latest computer and communications technologies, we annually provide nearly 1.3 million documents and research and development management information summaries to our users, in addition to more than .75 million on-line interrogations of our databases, and have developed and host over 90 web sites, providing more than 96 million accesses per year. The military, universities, managers, scientists, engineers, and contractors look to DTIC for leadership in the advancement of information access and sharing. DTIC currently serves more than 4800 organizations located in the U.S. and overseas.

* This project is not a new start. This project was realigned from DLA PE 0605801S.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					**R-1 ITEM NOMENCLATURE** Defense Technical Information Services / 0605801K				
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
001 Defense Technical Information Center				34.324	34.504	33.275	32.299	31.378	Cont.	Cont.

FY 1999 PLANS:

- Ongoing Operations - Basic operation of DTIC including the output of products and services, personnel, maintenance of equipment, and payment for support services, i.e. personnel processing, building services and maintenance, legal support, etc., paid to other government agencies via Inter-service Support Agreements (1 Qtr - 4 Qtr; $29.849 Million).
- Improved Access, Dissemination and Use of Information - DTIC continues its efforts to improve the capture and distribution of information in the electronic form and to move to paperless information management. Initiate Full Operating Capability (FOC) of the Electronic Document Management System. FOC includes implementing new search and retrieval capabilities and electronic delivery of documents. Continue development of a Defense Virtual Library that will identify key government and commercial information resources and present them in a customized, integrated manner to foster collegial effort in specific DoD communities. Begin efforts to provide classified multimedia products (2 Qtr - 3 Qtr; $1.875 Million).
- Business Process Reengineering - Continue management of BPR effort for the Director, Defense Research and Engineering (DDR&E). Efforts consist of reengineering S&T processes to achieve greater mission effectiveness and standardizing business management data to promote interoperability, minimize duplication, and enhance information available to the decision maker at all levels (1 Qtr - 4 Qtr; $ 2.600 Million).

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					**R-1 ITEM NOMENCLATURE** Defense Technical Information Services / 0605801K					
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
001 Defense Technical Information Center				34.324	34.504	33.275	32.299	31.378	Cont.	Cont.

B. Program Change Summary:

	Cost in Millions		
	FY 97	FY 98	FY 99
Previous President's Budget (FY 1998)			0
Appropriated Value			
Adjustment to Appropriated Value			
Adjustment to Budget Year since FY 1998 President's Budget			+34.324
Current Budget Submission/President's Budget (FY 1999)			34.324

Change Summary Explanation:
This project was realigned to DISA from DLA by direction of the Defense Reform Initiative.

C. Other Program Funding Summary: No related efforts.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					**R-1 ITEM NOMENCLATURE** Defense Technical Information Services / 0605801K					
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
001 Defense Technical Information Center				34.324	34.504	33.275	32.299	31.378	Cont.	Cont.

D. Schedule Profile:

	FY 97				FY 98				FY 99			
	1	2	3	4	1	2	3	4	1	2	3	4
Electronic Document Management System (EDMS):												
Initiate software development for Full Operational Capability									X			
Defense Virtual Library:												
Implement Video format									All Qtrs			
Augment User Authentication, encryption and data integrity capabilities									All Qtrs			

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					R-1 ITEM NOMENCLATURE Defense Technical Information Services / 0605801K					
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
002 Information Analysis Centers				12.145	12.198	12.257	12.478	12.742	Cont.	Cont.

A. Mission Description and Budget Item Justification: The IACs are contractor-operated research organizations chartered by OSD to collect, analyze, synthesize and disseminate worldwide scientific and technical information in specialized fields to prevent re-inventing research and to promote standardization within these fields. The IACs are staffed with subject experts to provide compilation of information, synthesize and evaluate it for relevancy to specific inquiries, supply in-depth analysis services and create specialized technical information products. IACs respond to technical inquiries, prepare state-of-the-art reports, handbooks and databooks, perform technology assessments, and support exchange of information among scientists, engineers, and practitioners of disciplines within the scope of the IAC. The DoD IAC program continues to experience significant growth in work requirements. This growth can be attributed to DoD customers recognizing that IACs can be used to synthesize existing information and provide expert technical advice resulting in better use of diminishing RDT&E and procurement resources. There are 23 DoD IACs, 7 operated within the Army (using Army personnel to perform IAC functions), 2 by the Air Force, 1 by Defense Special Weapons Agency (DSWA) and 13 funded and managed by DTIC. This project funds the basic operations described above for the DTIC managed IACs as well as the IAC Program Management Office (PMO) located at Ft. Belvoir. The program office provides management and oversight of the 13 DTIC funded IACs. The PMO also promotes DoD IAC awareness, acts as liaison between government and contractors, writes and implements policy, establishes infrastructure and maintenance, and provides operational forces technical support. Acquisition functions performed by PMO include initiating and managing primary contracting officers' functions and contracting officers' technical representative functional oversight. DTIC and its IAC program are the central source for scientific and technical information and support for the Defense research community and war fighting commands.

* This project is not a new start. This project was realigned from DLA PE 0605801S.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					**R-1 ITEM NOMENCLATURE** Defense Technical Information Services / 0605801K					
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
002 Information Analysis Centers				12.145	12.198	12.257	12.478	12.742	Cont.	Cont.

FY 1999 PLANS:

• Funds personnel and operational costs for the IAC Program Management Office, to include the promotion and expansion of IAC awareness in DoD and non-DoD communities. Continue integration of Performance Results Evaluation and Management Information System (PREMIS) and Office Filing System (OFS) with the capability to electronically track and generate work unit information and technical report documentation into a seamless process. Expand database interfaces and integrate tools for application of information to complete the OFS paperless office environment. Identify and manage government information collections abandoned by disestablished organizations that should be transferred and incorporated into the IAC program. Conduct competitive procurement of new and existing IACs (1 Qtr - 4 Qtr; $1.788 Million).

• Provides basic operational, technical monitor and security office support for each of the DTIC sponsored, contractor operated IACs ($ 10.357 Million) (1 Qtr - 4 Qtr). Examples of planned accomplishments include:

- Enhancement and continued monitoring of secure systems.
- Establishment and/or enhancement of foreign exchange of authorized information through links previously established with DoD operational and intelligence communities.
- Acquire and/or incorporate technology to access, receive and/or disseminate information from multiple databases, simultaneously.
- Acquire technology to link the warfighter directly to IAC databases and inquiry services for real-time on-line access.
- Pursue implementation of state of the art electronic technologies to meet requirements of IAC user communities.
- Implement Information Operations stealth tools to automate and disseminate classified information through secure networks.
- Pursue, identify, develop and/or implement new and innovative technologies with potential for overcoming existing barriers to information communication among the IAC user communities.
- Continue realignment of IACs in support of Defense Technology Objectives within current budget constraints.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/06					R-1 ITEM NOMENCLATURE Defense Technical Information Services / 0605801K					
COST (in millions)		FY97	FY98	FY99 *	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
002 Information Analysis Centers				12.145	12.198	12.257	12.478	12.742	Cont.	Cont.

B. Program Change Summary

	Cost in Millions		
	FY 97	FY 98	FY 99
Previous President's Budget (FY 1998)			0
Appropriated Value			
Adjustment to Appropriated Value			
Adjustment to Budget Year since FY 1998 President's Budget			+12.145
Current Budget Submission/President's Budget (FY 1999)			12.145

Change Summary Explanation:
This project was realigned from DLA to DISA by direction of the Defense Reform Initiative.

C. Other Program Funding Summary: Not applicable.

D. Schedule Profile: Not Applicable.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** C3 Interoperability 0208045K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
PE: 0208045K		24.391	24.913	26.296	27.807	29.380	30.183	30.975	Contg	Contg
T20 Center for Standards		1.367	1.632	0*	0*	0*	0*	0*	Contg	Contg
T80 Technology Assessment and Insertion		.598	.582	0**	0**	0**	0**	0**	Contg	Contg
T30 Test and Evaluation		14.832	14.690	17.187	18.191	19.267	19.864	20.432	Contg	Contg
T40 Major Range and Test Facility Base (MRTFB)		7.594	8.009	9.109	9.616	10.113	10.319	10.543	Contg	Contg

A. Mission Description & Budget Item Justification:

To ensure interoperability and integration of Command, Control, Communications and Intelligence (C3I) systems through development and maintenance of a joint global architecture, interface and system standards, interface definitions, operational procedures and a test and certification program for C3 systems; and to function as an Operational Test Agency (OTA) to test/certify the Defense Information Systems Network (DISN), Defense Message System (DMS), and other strategic systems. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.

* Project T20, Center for Standards, has been realigned to PE 0303149K, C4I for the Warrior.

** Project T80, Technology Assessment and Insertion, has been realigned to PE 0303126K, Long Haul Communications, Project T82.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Center for Standards/T20		1.367	1.632	0*	0	0	0	0	Contg	Contg

A. Mission Description & Budget Item Justification:

The Center serves as DOD Executive Agent for centralized management of Information Technology (IT) standards. The primary goal is to guide development of standards within DoD and encourage industry adoption of standards supporting DOD requirements. When commercially available standards exist, they will be adopted. The Center will manage development of DOD unique requirement efforts. The Center will also select candidate technologies for advanced technology demonstrations, and develop the roadmap and business case analyses for transitioning technologies into leading edge services.

(U) FY 1997 Accomplishments:

- Commenced update of MIL-STD-187-700C for the DIS (1st Qtr - 4th Qtr; $150K).
- Technical Standards support on Joint and Electronic Key Management Systems (1st Qtr - 4th Qtr; $85K).
- Explored User/System Developer Standards Requirements (1st Qtr - 4th Qtr; $130K).
- Developed Multicasting Lower Layer 3 Routing Standards (1st Qtr - 4th Qtr; $103K).
- Enhanced Lower Layer 4 Multicasting Standards (1st Qtr - 4th Qtr; $105K).
- Revised and distributed parts of Joint Pub 6-05 (1st Qtr - 4th Qtr; $240K).
- Completed development of ITU X.400 Key Protocol Standards (1st Qtr - 4th Qtr; $74K).
- Validated and approved Tactical Messaging Standards and initial Thin Stack Standards (1st Qtr - 4th Qtr; $110K).
- Validated and approved Tactical Directory Standard (1st Qtr - 4th Qtr; $90K).
- Maintained and expanded IT Standards Framework, established a repository of certified DOD IT standards profiles, provided direct standards profile selection support for DOD system (1st Qtr - 4th Qtr; $280K).

$1.367M Total

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T20.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Center for Standards/T20		1.367	1.632	0*	0	0	0	0	Contg	Contg

(U) FY 1998 Plans:

- o Develop ATM Network-to-Network Interface Standards Profile (1st Qtr - 4th Qtr; $220K).
- o Development of SHF, UHF, and EHF SATCOM Standards (1st Qtr - 4th Qtr; $550K).
- o Technical support of SATCOM STANAG development (1st Qtr - 4th Qtr; $193K).
- o Technical support to NATO TACOMS 2000 (1st Qtr - 4th Qtr; $200K).
- o Technical support to message (1st Qtr - 4th Qtr; $150K).
- o Technical support to PM-Electronic Commerce (1st Qtr - 4th Qtr; $150K).
- o Development of standards for Digitized Battlefield (1st Qtr - 4th Qtr; $100K).
- o DOD technical requirements for Internet Engineering Task Force (1st Qtr - 4th Qtr; $69K).

$1.632M Total

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	1.674	1.632	1.677
Appropriated Value	1.582	1.632	
Adjustments to Appropriated Value	-.215		
Adjustments to Budget Year Since FY98 President's Budget			
Current Budget Submit/President's Budget (FY99)	1.367	1.632	0*

Change Summary Explanation:

FY97 decrease is due to below threshold reprogramming.

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T20.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** C3 Interoperability 0208045K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Center for Standards/T20		1.367	1.632	0*	0	0	0	0	Contg	Contg

C. Other Program Funding Summary:

	FY97	FY98	FY99	Total Cost
O&M	6.642	10.092	0*	Contg

D. Schedule Profile:

FY 1997 1st Qtr: UHF SATCOM 5KHz DAMA Waveform Standard (Voice)
2nd Qtr: Revised X.500 PICS for Directory Services
3rd Qtr: EHF SATCOM Medium Data Rate (MDR) Data Link Standard, Revision A
4th Qtr: SHF SATCOM Message Format Standard

FY 1998 All Qtrs: Develop VTC Standards Profile for ATM Networks
2nd Qtr: Internet RFC on Common Security Labeling, Internet RFC on COUL Protocol
3rd Qtr: UHF SATCOM Data Control Standard, Revision A
4th Qtr: EHF SATCOM Low Data Rate Data Link Standard, Revision E

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T20.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** C3 Interoperability 0208045K/Center for Standards/T20

A. Project Cost Breakdown: ($Millions)

	FY97	FY98	FY99
Systems Engineering	1.367	1.632	0*

B. Budget Acquisition History and Planning Information:

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
LOGICON	C/CPFF	08/91				.943			Contg	Contg
JSE	C/CPFF C/CPAF					.424	1.632		Contg	Contg
	TOTAL PROJECT					1.367	1.632			

In House Engineering & Technical Support: N/A

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T20.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** C3 Interoperability 0208045K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Technology Assessment and Insertion/T80		.598	.582	0*	0	0	0	0	Contg	Contg

A. Mission Description & Budget Item Justification:

This project plans and promotes an expeditious and cost effective development of needed information technology capabilities by targeting R&D efforts to DOD mission needs and leveraging on DOD and industry developments. It provides for the transition of new technologies into leading edge and core information services.

(U) FY 1997 Plans:

- Engineering for Network Engineering Assessment Facility (NEAF) (1st Qtr - 4th Qtr; $265K).
- Engineering for ATM systems for Unclassified Internet Protocol Network (NIPRNET) and Global Combat Support System (GCSS) (1st Qtr - 4th Qtr; $333K).

$.598M Total

(U) FY 1998 Plans:

- Engineering for NEAF (1st Qtr - 4th Qtr; $200K).
- Engineering for ATM systems for NIPRNET and GCSS (1st Qtr - 4th Qtr; $382K).

$.582M Total

* Beginning FY99, this project is being realigned to PE 0303126K, Long Haul Communication, project T82.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Technology Assessment and Insertion/T80		.598	.582	0*	0	0	0	0	Contg	Contg

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	.550	.582	.598
Appropriated Value	.563	.582	
Adjustments to Appropriated Value	+.035		
Adjustments to Budget Year Since FY98 President's Budget			
Current Budget Submit/President's Budget (FY99)	.598	.582	0*

Change Summary Explanation:
FY97 change due to below threshold reprogramming.

C. Other Program Funding Summary: N/A

D. Schedule Profile:
(U) All Qtrs: Engineering for NEAF
Engineering for ATM systems for NIPRNET and GCSS.

* Beginning FY99, this project is being realigned to PE 0303126K, Long Haul Communication, project T82.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** C3 Interoperability 0208045K/Technology Assessment and Insertion/T80

A. Project Cost Breakdown: ($Millions)

	FY97	FY98	FY99
Systems Engineering	.598	.582	0*

B. Budget Acquisition History and Planning Information:

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
All Other Contracts						.598	.582		Contg	Contg
	TOTAL PROJECT					.598	.582			

In House Engineering & Technical Support: N/A

* Beginning FY99, this project is being realigned to PE 0303126K, Long Haul Communications, project T82.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Test and Evaluation/T30		14.832	14.690	17.187	18.191	19.267	19.864	20.432	Contg	Contg

A. Mission Description & Budget Item Justification: Through effective life cycle test and evaluation (T&E), this project ensures that C3I and information systems (IS) developed by DOD Components are interoperable and permit flexible employment of forces throughout the world. T&E is performed throughout the entire life cycle including proof-of-concept, system development, system deployment, and system upgrade and modification. This T&E includes interoperability, performance, operational test and evaluation, systems effectiveness and force effectiveness testing of all C3I and IS system standards and system interfaces used in joint and combined operations.

(U) FY 1997 Accomplishments:

o In support of Universal Joint Task List (UJTL) tasks SN7.2.4 (Conduct Testing) and SN7.5 (Ensure Interoperability), provided test and evaluation of DoD's major C4I programs, to include Defense Message System (DMS), Global Command and Control System (GCCS), Defense Information Systems Network (DISN), and Electronic Commerce (EC). Certified that critical requirements are supported by interoperable functionalities and provided the program manager a technical perspective of system capabilities and status. Worked with developers, users and program managers to provide early warning and solutions to problems. Provided operational test and evaluation of DISA/DoD managed or procured systems, such as GCCS, DMS and DISN. Documented critical operational issues, expressed in terms of operational effectiveness and suitability, through an appropriate test for referral to the decision authority. Utilized stimulation to stress systems, simulation to gain insight into system performance which cannot be replicated in an operational test, and desktop studies when testing is not appropriate. Tested and certified communications systems used by all levels of personnel to include communications facilities transitioning from outdated systems and equipment to DMS compliant and interoperable systems. (Oct 96 - Sep 97, $5.872M)

o In support of UJTL task SN7.5, Ensure Interoperability, provided C4I exercise and contingency support and assistance during exercises, such as Tandem Thrust, Roving Sands, Grecian Firebolt, Unified Endeavor and Cobra Gold, real-time operational fixes and problem resolution to CINCs, Services and Agencies. The objective was to provide rapid solutions to C4I problems experienced when integrating DoD systems, and Joint/Combined interfaces to DoD systems in operational environments. Provided real-time warfighter problem and technical resolution support through the use of a 24-hour hot line. Published on a quarterly basis a Lessons Learned Report to share C4I problems, issues and solutions. (Oct 96 - Sep 97, $1.493M)

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Test and Evaluation/T30		14.832	14.690	17.187	18.191	19.267	19.864	20.432	Contg	Contg

A. Mission Description & Budget Item Justification (continued):

(U) FY 1997 Accomplishments: (Continued)

o In support of UJTL tasks SN7.2.4 (Conduct Testing) and SN7.5 (Ensure Interoperability), provided testing, certification and evaluation support for C3I systems. Supported production decisions of the Defense Acquisition Board (DAB) and fielding decisions of the Chairman, Joint Chiefs of Staff (CJCS) by providing test, certification and evaluation of C3I systems to ensure interoperability within and between systems, the sustaining base, the National Command Authority, and Service echelons and allies. Systems tested included High Frequency Automatic Link Establishment (HF/ALE), Ultra-High Frequency Demand Access Multiple Assignment (UHF DAMA), major switches, Land Mobile Radio, Intertheater COMSEC Program, Network Management Initiatives, Tactical Data Link (TADIL A, B, J), and US Message Text Format (USMTF). (Oct 96 - Sep 97, $7.467M)

$14.832M Total

(U) FY 1998 Plans

o Provide test and evaluation of DoD's major C4I programs, such as DMS, GCCS, and DISN, by certifying that critical requirements are supported by interoperable functionalities. Evaluate systems' operational effectiveness and suitability for fielding by documenting critical operational issues through an appropriate test, and referring results to the decision authority. (Oct 97 - Sep 98, $5.360M)

o Support production decisions of the Defense Acquisition Board (DAB) and fielding decisions of the Chairman, Joint Chiefs of Staff (CJCS) by providing test, evaluation and certification of C4I systems to ensure interoperability within and between systems, the sustaining base, the National Command Authority, and Service echelons and allies. (Oct 97 - Sep 98, $6.220M)

o Provide technical and operational support and expertise to CINCs, Services and Agencies during exercises, real world contingencies and operational assessments. Provide Lessons Learned Reports on NIPRNET/SIPRNET addressing current interoperability problems and solutions. (Oct 97 - Sep 98, $3.110M)

$14.690M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Test and Evaluation/T30		14.832	14.690	17.187	18.191	19.267	19.864	20.432	Contg	Contg

A. Mission Description & Budget Item Justification (continued):

(U) FY 1999 Plans

o Provide test and evaluation of DoD's major C4I programs, such as DMS, GCCS, and DISN, by certifying that critical requirements are supported by interoperable functionalities. Evaluate systems' operational effectiveness and suitability for fielding by documenting critical operational issues through an appropriate test, and referring results to the decision authority. (Oct 98 - Sep 99, $7.093M)

o Support production decisions of the Defense Acquisition Board (DAB) and fielding decisions of the Chairman, Joint Chiefs of Staff (CJCS) by providing test, evaluation and certification of C4I systems to ensure interoperability within and between systems, the sustaining base, the National Command Authority, and Service echelons and allies. (Oct 98 - Sep 99, $6.729M)

o Provide technical and operational support and expertise to CINCs, Services and Agencies during exercises, real world contingencies and operational assessments. Provide Lessons Learned Reports on NIPRNET/SIPRNET addressing current interoperability problems and solutions. (Oct 98 - Sep 99, $3.365M)

$17.187M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Test and Evaluation/T30		14.832	14.690	17.187	18.191	19.267	19.864	20.432	Contg	Contg

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	15.043	15.447	16.029
Appropriated Value	14.449	15.447	
Adjustments to Appropriated Value	.383	-.757	
Adjustments to Budget Year Since FY 1998 President's Budget			1.158
Current Budget Submit/President's Budget (FY 1999)	14.832	14.690	17.187

Change Summary Explanation:

Funding: FY97 change due to below-threshold reprogramming.
FY98 change due to Congressional adjustments to Defense-wide Investment Appropriation
FY99 change due to revised fiscal guidance and realignment of funds.

Schedule: N/A
Technical: N/A

C. Other Program Funding Summary: N/A

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Test and Evaluation/T30		14.832	14.690	17.187	18.191	19.267	19.864	20.432	Contg	Contg

D. Schedule Profile:

(U) FY 1997

- 2nd Quarter - DMS X.400 project; OT&E of DISN INMS, GCCS and others. In conjunction with DISA's mission to support testing and associated training activities of the Navy Computer and Telecommunications Command, support the following programs: BETA and OT&E of Navy unique and DMS joint projects, Multilevel Mail Server, (MMS), Message Distribution Terminal (MDT).

- 4th Quarter - Interoperability and technical testing for the following: GCCS, AN/USC-42 (Mini-DAMA), Ultra-High Frequency Satellite Terminal System, DISN, Global Grid, Asynchronous Transfer Mode (ATM), and multiple US command and control systems employing TADILS A/B/C/J, ATDL-1, USMTF and VHF standards.

(U) FY 1998

- 2nd Quarter - DMS X.400 project; OT&E of DISN INMS, GCCS and others. In conjunction with DISA's mission to support testing and associated training activities of the Navy Computer and Telecommunications Command, support the following programs: BETA and OT&E of Navy unique and DMS joint projects, Multilevel Mail Server, (MMS), Message Distribution Terminal (MDT).

- 4th Quarter - Interoperability and technical testing for the following: GCCS, AN/USC-42 (Mini-DAMA), Ultra-High Frequency Satellite Terminal System, DISN, Global Grid, Asynchronous Transfer Mode (ATM), and multiple US command and control systems employing TADILS A/B/C/J, ATDL-1, USMTF and VHF standards.

(U) FY 1999

- 2nd Quarter - DMS X.400 project; OT&E of DISN INMS, GCCS and others. In conjunction with DISA's mission to support testing and associated training activities of the Navy Computer and Telecommunications Command, support the following programs: BETA and OT&E of Navy unique and DMS joint projects, Multilevel Mail Server, (MMS), Message Distribution Terminal (MDT).

- 4th Quarter - Interoperability and technical testing for the following: GCCS, AN/USC-42 (Mini-DAMA), Ultra-High Frequency Satellite Terminal System, DISN, Global Grid, Asynchronous Transfer Mode (ATM), and multiple US command and control systems employing TADILS A/B/C/J, ATDL-1, USMTF and VHF standards.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

APPROPRIATION/BUDGET ACTIVITY
RDT&E, Defense Wide/07

R-1 ITEM NOMENCLATURE
C3 Interoperability 0208045K/Test and Evaluation/T30

A. Project Cost Breakdown ($ Millions)

	FY97	FY98	FY99
C3I Interoperability and Information Systems Testing	14.832	14.690	17.187

B. Budget Acquisition History and Planning Information

Test and Evaluation Organization

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget To Complete	Total Program
LOGICON	C-CPAF	08/91	12.772	12.772	12.772	.000	.000	.000	.000	12.772
VALIDITY	C-T&M	10/91	5.878	5.878	5.159	.719	.000	.000	.000	5.878
*VALIDITY	C-CPAF	02/97	4.480	4.480	.000	.861	1.647	1.972	Contg	Contg
INTEROP	C-CPAF	08/91	16.088	16.088	15.215	.873	.000	.000	.000	16.088
*INTEROP	C-CPAF	02/97	12.870	12.870	.000	1.052	2.013	2.410	Contg	Contg
BDM	C-CPAF	08/91	14.784	14.784	13.714	1.070	.000	.000	.000	14.784
*BDM	C-CPAF	02/97	11.880	11.880	.000	1.276	2.440	2.922	Contg	Contg
All Other Contracts					1.371					
		Subtotal Contracts			48.231	5.851	6.100	7.304	Contg	Contg
In House Engineering & Technical Support										
		Subtotal In-House				8.981	8.590	9.883		
TOTAL PROJECT						14.832	14.690	17.187		

*New OMNIBUS contracts obligated in 2nd quarter of FY97.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Major Range and Test Facility Base (MRTFB)/T40		7.594	8.009	9.109	9.616	10.113	10.319	10.543	Contg	Contg

A. Mission Description & Budget Item Justification: This project provides resources to operate DISA's Joint Interoperability Test Command (JITC) which is a member of DOD's Major Range and Test Facility Base (MRTFB). Indirect operation/maintenance expenses, overall testbed improvement and modernization, and facility and logistics support are included in this project.

(U) FY 1997 Accomplishments:

- Continue to refine the automated systems to facilitate test and evaluation and maximize use of test assets; maintain the Corporate Database and other microcomputer applications to provide cost accounting reports to track and catalog customer expenses for internal and external processes and customer disclosure; continue to develop automated support for management of contracts, manpower and fiscal resources; provide base operations business support to JITC's testing mission; (Oct 96 - Sep 97, $1.539M).

- Maintain and operate the JITC test facilities at Fort Huachuca, AZ; VA and Cheltenham, MD for DOD use; provide other indirect mission support (Oct 96 - Sep 97, $6.055M).

$7.594M Total

(U) FY 1998 Plans:

- Recurring maintenance of JITC's automated systems to facilitate test and evaluation and maximize use of test assets; maintain the Corporate Database and other microcomputer applications to provide cost accounting reports to track and catalog customer expenses for internal and external processes and customer disclosure; continue to develop automated support for management of contracts, manpower and fiscal resources; provide base operations business support to JITC's testing mission; (Oct 97 - Sep 98, $1.540M).

- Maintain and operate the JITC test facilities at Fort Huachuca, AZ; VA and Cheltenham, MD for DOD use; provide other indirect mission support (Oct 97 - Sep 98, $6.469M).

$8.009M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Major Range and Test Facility Base (MRTFB)/T40		7.594	8.009	9.109	9.616	10.113	10.319	10.543	Contg	Contg

A. Mission Description & Budget Item Justification: (Continued)

(U) FY 1999 Plans:

- Recurring maintenance of JITC's automated systems to facilitate test and evaluation and maximize use of test assets; maintain the Corporate Database and other microcomputer applications to provide cost accounting reports to track and catalog customer expenses for internal and external processes and customer disclosure; continue to develop automated support for management of contracts, manpower and fiscal resources; provide base operations business support to JITC's testing mission; (Oct 98 - Sep 99, $1.560M).

- Maintain and operate the JITC test facilities at Fort Huachuca, AZ; VA and Cheltenham, MD for DOD use; provide other indirect test mission support (Oct 98 - Sep 99, $7.549M).

$9.109M Total

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	7.674	8.009	8.344
Appropriated Value	7.674	8.009	
Adjustments to Appropriated Value	-.080		
Adjustments to Budget Year Since FY 1998 President's Budget			.765
Current Budget Submit/President's Budget (FY 1999)	7.594	8.009	9.109

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C3 Interoperability 0208045K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Major Range and Test Facility Base (MRTFB)/T40		7.594	8.009	9.109	9.616	10.113	10.319	10.543	Contg	Contg

B. Program Change Summary (Continued)

Change Summary Explanation:
FY97 decrease due to below-threshold reprogramming.
FY98 change due to Congressional adjustments to Defense-wide Investment Appropriation.
FY99 change due to revised fiscal guidance and realignment of funds.

C. Other Program Funding Summary: N/A

D. Schedule Profile Milestones:

(U) FY 1997 through FY 1999

1st-4th Quarter - BOS and RPMAR and Corporate MIS Database; business process review and improvement; test infrastructure

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** C3 Interoperability 0208045K/Major Range and Test Facility Base (MRTFB)

A. Project Cost Breakdown ($ Millions)

	FY97	FY98	FY99
a. Improvement and Modernization (I&M)	.612	.610	.615
b. Base Operating Support (BOS)	.927	.930	.945
c. Other Institutional Expenses	6.055	6.469	7.549
TOTAL:	7.594	8.009	9.109

B. Budget Acquisition History and Planning Information

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget To Complete	Total Program
LOGICON	C-CPAF	08/91	8.745	8.745	8.545	.200	.000	.000	.000	8.745
VALIDITY	C-T&M	10/91	1.325	1.325	1.106	.219	.000	.000	.000	1.325
*VALIDITY	C-CPAF	02/97	2.581	2.581	.000	.510	.974	1.097	Contg	Contg
INTEROP	C-CPAF	08/91	9.996	9.996	9.443	.553	.000	.000	.000	9.996
*INTEROP	C-CPAF	02/97	3.730	3.730	.000	.657	1.257	1.816	Contg	Contg
BDM	C-CPAF	08/91	8.545	8.545	8.145	.400	.000	.000	.000	8.545
*BDM	C-CPAF	02/97	2.414	2.414	.000	.476	.911	1.027	Contg	Contg
		Subtotal Contracts				3.015	3.142	3.940	Contg	Contg
In House Engineering & Technical Support										
		Subtotal In-House				4.579	4.867	5.169		
TOTAL PROJECT						7.594	8.009	9.109		

*New OMNIBUS contracts obligated in 2nd quarter of FY 97.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit) | **DATE:** February 1998

APPROPRIATION/BUDGET ACTIVITY
RDT&E, Defense Wide/07

R-1 ITEM NOMENCLATURE
National Military Command System (NMCS)-Wide Support/0302016K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total Program Element (PE) Cost		1.950	1.688	1.189	1.247	1.312	1.331	1.385	Contg	Contg
NMCS Subsystem Engineering/T50		.361	.306	0*	0	0	0	0	Contg	Contg
NMCS Command Center Engineering/S32		1.202	1.013	1.189	1.247	1.312	1.331	1.385	Contg	Contg
Support to Defense Support Activity (DSA)/Z60		.387	.369	0**	0	0	0	0	0	.756

A. Mission Description and Budget Item Justification:

This program provides concept development, requirements definition, proof-of-principle experiments, rapid prototyping and technology insertions, technical specifications, systems engineering and integration, and technical assessments for NMCS Command and Control (C2) systems. This support provides informed, decision-making linkage between the National Command Authorities (NCA) and the Commanders-in-Chief (CINC) of the Unified and Specified Commands. Concentrating on the CINCs, this engineering draws upon improved C2 methodologies and technology insertion opportunities to meet the command, control and information system requirements of the CINCs for all crises and security threats involving US military forces. These efforts emphasize interoperability and are designed to contribute directly to the achievement of the global C4I infrastructure. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T50.
** Beginning FY99, this project is being disestablished by direction of the Defense Reform Initiative.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Subsystem Engineering\T50		.361	.306	0*	0	0	0	0	Contg	Contg

A. Mission Description & Budget Item Justification:

To accommodate rapid changes in requirements and increasing budget constraints, new approaches to reduce development and integration time, as well as costs for command and control systems must be sought. This project provides system engineering support to C4I information systems by developing near-term prototypes to satisfy CINC/Joint Task Force (JTF) operational requirements. Through this prototyping technical approach, operational requirements are assessed, system performance is measured, system interoperability is demonstrated and standard DISA products are premiered in an operational setting (Defense Message System (DMS), Global Command and Control System (GCCS), Global Combat Support System (GCSS), and Defense Information Infrastructure (DII)). The incorporation of prototypes into Joint Warrior Interoperability Demonstration (JWID) demonstrations and command exercises provides real-time assessment of technological advances and identifies interoperability problems and generates associated solutions. This approach also applies to assessing command center capabilities and the implications of DMS, GCCS, GCSS and DII on future command center requirements.

* Beginning FY99 this project is being realigned to PE 0303149K, C4I for the Warrior, project T50.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Subsystem Engineering\T50		.361	.306	0*	0	0	0	0	Contg	Contg

(U) FY 1997 Accomplishments:

- Integration of additional GCCS functionality, DMS and DII capabilities into JTF prototypes (1st Qtr - 4th Qtr; $95K).
- Technical analysis for operational implementation of EUCOM's Soldier's Digital Assistant (SDA) concept (1st Qtr; $48K).
- Assess CINC/JTF prototypes (with DMS, DII capabilities) during major exercises and demonstrations (1st Qtr - 3rd Qtr; $48K).
- EUCOM continued C2 systems integration for CINC/JTFs (1st Qtr; $73K).
- Continued C2 systems integration for CINC/JTFs (1st Qtr - 3rd Qtr; $97K).

$.361M Total

(U) FY 1998 Plans:

- CINC/JTF prototype enhancements via integration of COTS/GOTS capabilities and emerging GCCS and DII technologies (1st Qtr; $306K).

$.306M Total

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T50.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Subsystem Engineering/T50		.361	.306	0*	0	0	0	0	Contg	Contg

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	.367	.406	.431
Appropriated Value	.367	.406	
Adjustments to Appropriated Value	-.006	-.100	
Adjustments to Budget Year Since FY98 President's Budget			
Current Budget Submit/President's Budget (FY99)	.361	.306	0*

Change Summary Explanation:

FY97 change due to below threshold reprogramming.

FY98 decrease due to Congressional adjustment to Defense-wide investment appropriation.

C. Other Program Funding Summary:

Related RDT&E: Program Element #0208045K, C3 Interoperability.

D. Schedule Profile:

FY1997 1st Qtr: Technical analysis for operational implementation of EUCOM's SDA concept
EUCOM - continued C2 system integration for CINC/JTFs
Continued C2 system integration for other CINC/JTFs

3rd Qtr: Assess CINC/JTF prototypes (with DMS, DII capabilities) during major exercises and demonstrations

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T50.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE National Military Command System (NMCS)-Wide Support/0302016K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Subsystem Engineering/T50		.361	.306	0*	0	0	0	0	Contg	Contg

4th Qtr: Integration of additional GCCS functionality, DMS and DII capabilities into JTF prototypes.

FY1998 1st Qtr: CINC/JTF prototype enhancements via integration of COTS/GOTS capabilities and emerging GCSS and DII technologies

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T50.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K NMCS Subsystem Engineering/T50

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY97	FY98	FY99
a. Systems Engineering	.361	.306	0*
TOTAL	.361	.306	

B. Budget Acquisition History and Planning Information:
Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities	C/SS CPAF CPFF WR/PO					.361	.306		Contg	Contg
Government Furnished Property: N/A										
Total Project						.361	.306			

* Beginning FY99, this project is being realigned to PE 0303149K, C4I for the Warrior, project T50.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Command Center Engineering/S32		1.202	1.013	1.189	1.247	1.312	1.331	1.385	Contg	Contg

A. Mission Description and Budget Item Justification:

This project provides overall system engineering and technical integration activities for a broad spectrum of command center systems which provide the underpinning capabilities for the crisis/war decision-making processes of the National Command Authorities (NCA), the NMCS, and the Unified and Specified Commanders-in-Chief. Technical activities include requirements analysis, systems definition and engineering, and rapid prototyping. The project emphasizes the utilization of commercial-off-the-shelf (COTS) and emerging technologies for application in NMCS command centers in information processing and overall facility design to provide common solutions to theater, national, and world-wide crisis situations affecting the Department of Defense (DOD) and the Executive Office of the President.

(U) FY 1997 Accomplishments:

- Technical analysis for implementation of improvements to National Airborne Operation Center (NAOC) and Special Aircraft Mission (SAM) aircraft (3rd Qtr - 4th Qtr; $98K).
- Engineering support for qualitative operational test and evaluation of major NAOC improvements (4th Qtr; $73K).
- Trouble-shooting and support of current NAOC and 89th Wing operations (4th Qtr; $147K).
- Development of overall and individual systems and subsystem engineering, transition plans and test plans for moving the NMCC to another location in the Pentagon (1st Qtr - 3rd Qtr; $529K).
- Engineering evaluation of new emergency message and TW/AA systems for the NMCC and NMCC Site R (1st Qtr - 4th Qtr; $171K).
- Integration engineering and transitioning secure NMCC systems to the DMS (1st Qtr - 2nd Qtr; $97K).
- Revise and update the Senior Leadership Communications Architecture (SLCA) (4th Qtr; $87K).

$1.202M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Command Center Engineering\S32		1.202	1.013	1.189	1.247	1.312	1.331	1.385	Contg	Contg

(U) FY 1998 Plans:

- Revise and update the SLCA (1st Qtr - 4th Qtr; $60K).
- Technical analysis for implementation of improvement to NAOC and SAM aircraft (1st Qtr - 4th Qtr; $120K).
- Engineering support for qualitative operational test and evaluation of major NAOC improvements (1st-4th Qtr; $143K).
- Trouble-shooting and support of current NAOC and 89th Wing operations (1st Qtr - 4th Qtr; $149K).
- NMCS transition to Defense Message System (DMS) (1st Qtr- 4th Qtr; $100K).
- NMCS Engineering Support for integration of DII elements (1st Qtr - 4th Qtr; $169K).
- NMCS systems Test & Evaluation (1st Qtr - 4th Qtr; $150K).
- NMCC Baseline Management (1st Qtr - 4th Qtr; $122K)

$1.013M Total

(U) FY 1999 Plans:

- Revise and update the SLCA (1st Qtr - 4th Qtr; $60K).
- Technical analysis for implementation of improvements to NAOC and SAM aircraft (1st Qtr - 4th Qtr; $104K).
- Engineering support for qualitative operational test and evaluation of major NAOC improvements (1st Qtr - 4th Qtr; $110K).
- Trouble-shooting and support of current NAOC and 89th Wing operations (1st Qtr - 4th Qtr; $149K).
- Automated Configuration Management for JS and NMCC (1st Qtr - 4th Qtr; $144K).

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE National Military Command System (NMCS)-Wide Support/0302016K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Command Center Engineering\S32		1.202	1.013	1.189	1.247	1.312	1.331	1.385	Contg	Contg

(U) FY 1999 Plans (Continued):

- NMCC Site R and STRATCOM Planning (1st Qtr - 4th Qtr; $103K).
- NMCS DDO Upgrade (1st Qtr - 4th Qtr; $115K).
- NMCS Engineering Support for integration of DII elements (1st Qtr - 4th Qtr; $150K).
- NMCC Relocation Connectivity to JCS and HEMP issues (1st Qtr - 4th Qtr; $55K).
- NMCC Engineering of COM and ADP Systems (1st Qtr - 4th Qtr; $199K)

$1.189M Total

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	1.224	1.244	1.238
Appropriated Value	1.224	1.244	
Adjustments to Appropriated Value	-.022	-.231	
Adjustments to Budget Year Since FY98 President's Budget			-.049
Current Budget Submit/President's Budget (FY99)	1.202	1.013	1.189

Change Summary Explanation:

FY97 change due to below threshold reprogramming

FY98 change due to Congressional adjustments to Defense-wide investment appropriation.

FY99 adjustment due to revised inflation rates.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE National Military Command System (NMCS)-Wide Support/0302016K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Command Center Engineering/S32		1.202	1.013	1.189	1.247	1.312	1.331	1.385	Contg	Contg

C. Other Program Funding Summary:

	FY97	FY98	FY99	Total Cost
O&M 0302019K	.978	.904	.665	Contg

D. Schedule Profile:

FY1997
- 1st Qtr: Provide User Test & Evaluation criteria for NAOC Mod Block V.
- 2nd Qtr: Develop Option Year 2 of contract for NMCS Engineering Test & Evaluation.
- 4th Qtr: Develop Option Year 2 of contract for Command Center System Engineering.
  Complete Engineering for systems transition of new NMCC.
  SLCA update to provide CINCs and Service Chiefs guidance on how to improve their portions of the Senior Leadership Travel Communications System.

FY1998
- 1st Qtr: Provide interactive distributed communications management system for NMCS tasks.
- 2nd Qtr: Integrate new DII elements into JS procedures.
- 3rd Qtr: Update on-line database reference systems with new subscriber services.
- 4th Qtr: Annual update of SLCA.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Command Center Engineering/S32		1.202	1.013	1.189	1.247	1.312	1.331	1.385	Contg	Contg

FY1999
1st Qtr: NMCC relocation issues, consolidation of communications control from Site R.
2nd Qtr: NMCS ADP terminal improvement.
3rd Qtr: NMCC display and video switching improvement.
4th Qtr: NMCC DII integration with HEMP Room Equipment Suite.
Annual Update of SLCA.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K NMCS Command Center Engineering/S32

A. Project Cost Breakdown: ($Millions)

Projected Cost Categories

	FY97	FY98	FY99
a. System Engineering	1.202	1.013	1.189

B. Budget Acquisition History and Planning Information:

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities						1.202	1.013	1.189	Contg	Contg
Government Furnished Property: N/A										
TOTAL PROJECT						1.202	1.013	1.189		

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE National Military Command System (NMCS)-Wide Support/0302016K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Support to Defense Support Activity/Z60		.387	.369	0	0	0	0	0	0	.756

A. Mission Description and Budget Item Justification:

This project provides direct support to the Defense Support Activity (DSA) as prescribed in DOD Directive 5100.81. This project is unique in terms of the policy decisions supported and that the customers supported are actual DOD policy decision-makers. Z60 supports basic research and the acquisition and enhancement of software that aids in the illumination of counter-proliferation issues. Research is also provided in a number of areas of special interest to the OSD's theater tactical ballistic and cruise missile defense community and Precision Guided Munition (PGM) communities, as well as the defense planning community, and the acquisition and employment policy making communities. It also supports systems engineering, development of state-of-the-art technologies and the translation of these technologies into leading edge analytical models. Acquisition of support is provided by competitively awarded contracts.

(U) FY 1997 Accomplishments:

- Developed analytical tools used to support assessments of joint war fighting operational plans' compliance with the Secretary's guidance and to identify, clarify, and resolve policy issues. This development focused on illustrating PGM effects and optimal deployment of theater missile defenses. ($100K) (2nd Qtr - 4th Qtr)
- Acquired and enhanced leading edge analytical tools to identify and clarify policy issues in the following areas:
  1) the probability of structural damage to deep underground targets; and
  2) the effects of chemical and biological munitions on military operations. ($100K) (2nd Qtr - 4th Qtr)
- Examined the effectiveness of current and planned theater, regional, and national missile defensive systems against emerging threats. The resulting analysis was used to support the Quadrennial Defense Review (QDR) process and to realign the Theater High Altitude Air Defense (THAAD) program ($100K) (2nd Qtr - 4th Qtr)
- Developed analytical tools for the study of both the cruise missile defense and ballistic missile defensive systems, technologies, logistics, and architectures. ($50K) (2nd Qtr - 4th Qtr)

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Support to Defense Support Activity/Z60		.387	.369	0	0	0	0	0	0	.756

(U) FY 1997 Accomplishments(cont'd):

- Provided research support to the USD(A&T) as the cruise missile and ballistic missile threats evolved. The analysis was used to support the development of the DoD cruise missile defense acquisition master plan. ($37K) (2nd Qtr - 4th Qtr)

  $.387M Total

(U) FY 1998 Plans:

- Continue to develop analytical tools used to support assessments of joint war fighting operational plans' compliance with the Secretary's guidance and to rapidly illuminate policy issues. This development will focus on illustrating PGM effects and optimal deployment of theater missile defenses. ($80K) (2nd Qtr - 4th Qtr)
- Continue to acquire and enhance leading edge analytical tools to rapidly illuminate policy issues in the following areas:
  1) the probability of structural damage to deep underground targets; and
  2) the effects of chemical and biological munitions on military operations. ($81K) (2nd Qtr - 4th Qtr)
- Examine the ongoing Israeli/US ground based Theater High Energy Laser and the U.S. Airborne Laser programs for system efficacy and program performance. Provide alternatives and recommendations to USD(A&T). ($108K) (2nd Qtr - 4th Qtr)
- Evaluate National Missile Defense (NMD), Theater High Altitude Air Defense (THAAD), Navy Wide Area and Navy Theater Area Defense systems for performance and program effectiveness. Provide programmatic alternatives and recommendations to USD(A&T). ($50K) (2nd Qtr - 4th Qtr)
- Evaluate the DOD Cruise Missile Defense (CMD) programs and management structure for effectiveness and provide alternatives and recommendations to USD(A&T). ($50K) (2nd Qtr - 4th Qtr)

  $.369M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Support to Defense Support Activity/Z60		.387	.369	0	0	0	0	0	0	.756

(U) FY 1999 Plans:

- o Function disestablished by direction of the Defense Reform Initiative.

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	.387	.414	.430
Appropriated Value	.400	.414	
Adjustments to Appropriated Value	-.013	-.045	
Adjustments to Budget Year Since FY98 President's Budget			-.430
Current Budget Submit/President's Budget (FY99)	.387	.369	0

Change Summary Explanation:

FY98 changes are due to Congressional Adjustment to Defense-wide Investment Appropriation.

FY99 changes are due to Defense Reform Initiative.

C. Other Program Funding Summary:

Not applicable.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Support to Defense Support Activity/Z60		.387	.369	0	0	0	0	0	0	.756

D. Schedule Profile:

Fiscal Year actual and planned events by quarter

	FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4
Annual Renewal of contract		X				X						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** National Military Command System (NMCS)-Wide Support/0302016K Support to Defense Support Activity/Z60

A. Project Cost Breakdown: ($ Millions)

Project Cost Categories	FY97	FY98	FY99
a. Basic Research and Software Analysis	.387	.369	0
TOTAL	.387	.369	0

B. Budget Acquisition History and Planning Information:
Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities						.387	.369	0	0	.756
Government Furnished Property: N/A										
TOTAL PROJECT						.387	.369	0	0	.756

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RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering & Integration/PE 0302019K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total PE Cost: PE 0302019K		4.531	4.119	4.975	5.403	5.618	5.615	5.718	Contg	Contg
Defense-Wide C3 Architecture & Planning/T62		1.384	1.388	.814	.891	.973	.988	1.006	Contg	Contg
Technology Advancement/A19		.355	.355	0*	0	0	0	0	Contg	Contg
Modeling & Simulation/E62		0	0	4.161**	4.512	4.645	4.627	4.712	Contg	Contg
Special Projects/T64		1.159	1.039	0***	0	0	0	0	Contg	Contg
CINC/JTF C4 Integration/T66		1.633	1.337	0****	0	0	0	0	0	2.970

A. Mission Description and Budget Item Justification: This program element funds efforts involving the following areas: the development and fielding of the Defense Information Infrastructure (DII) Common Operating Environment (COE), engineering support of the DII including resolution of critical interoperability and technical integration issues, and the assessment of C4I initiatives that reside on the DII COE to ensure compatibility, interoperability and technical integration. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.

* Effective FY 1999, this project has been incorporated into Project E62, Modeling and Simulation.

** This project is not a new start. It combines efforts previously performed under Project E61, MILSATCOM, in PE 0303126K and Project A19, Technology Advancement, in PE 0302019K.

*** Effective FY 1999, this project has been realigned to PE 0303131K, Minimum Essential Emergency Communications Network (MEECN), Project T64.

**** Beginning FY 1999, this project is being converted from RDT&E to O&M.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Information Infrastucture Engineering and Integration 0302019K					
COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Defense-Wide C3 Architecture & Planning/T62		1.384	1.388	.814	.891	.973	.988	1.006	Contg	Contg

A. Mission Description & Budget Item Justification:

This project encompasses two efforts: (1) The first effort provides the interoperability and integration of resources essential to the achievement of a Global C4I Infrastructure that will be "seamless" to the user. This is accomplished through a multi-level planning program which includes four elements: (a) The Defense Information Infrastructure (DII), which integrates all DOD information systems, sensors, data storage services, communications networks, and computer storage devices to provide collection, processing, storage, display and information transfer; (b) DII Technology Insertion, which provides assessment of the utility of new technology through high level performance simulation of the DII; (c) The Defense Information Systems Network (DISN) which addresses the fixed common-user systems, treating the long haul communications, base-level, and rear-area tactical communications as an end-to-end system with particular focus on user requirements, technology and standards, features and services, security, and network management; (d) the DISN Security which includes current and future DISN security initiatives for communications. (2) The second effort provides planning for interoperability and integration of C4I for the Warrior (C4IFTW). This is accomplished through the development of enterprise, mission, functional and technical architecture products. These products depict how all DOD systems, to include information, sensors, data storage services, and communications networks provide collection, processing, storage, display and information transfer. It incorporates the DII and National Information Infrastructure (NII). This project gives DOD overall improved operational performance and reduced costs through common architecture standards and interfaces, and a sharing of assets and capabilities.

* Beginning FY99, part of this project was transferred to PE 0303126K, Long Haul Communications, project T82 to more appropriately reflect the work under Defense Information Systems Network.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastucture Engineering and Integration 0302019K

COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Defense-Wide C3 Architecture & Planning/T62		1.384	1.388	.814	.891	.973	.988	1.006	Contg	Contg

(U) FY 1997 Accomplishments:

- Perform Horizontal Integration Analysis and develop system engineering guidance for Horizontal Integration between the components of DISN, Defense Messaging System (DMS), DII Common Operating Environment (COE), Global Command and Control System (GCCS), Global Combat Support System (GCSS), DII Command and Control (DIIC2) and INFOSEC (1st Qtr - 4th Qtr; $838K).
- Develop prototype access line sizing for ATM-based networks and prototype backbone link sizing for ATM-based networks (1st Qtr - 4th Qtr; $546K).

$1.384M Total

(U) FY 1998 Plans:

- Continue to perform Horizontal Integration Analysis and develop system engineering guidance for Horizontal Integration between the components of DISN, DMS, DII COE, GCCS, GCSS, DIIC2 and INFOSEC (1st Qtr - 4th Qtr; $817K).
- Develop DARPA/DISA Joint Program Office recommended ATM user premises infrastructure design/analysis trade-off capability and develop ATM traffic source characterizations for specific applications (1st Qtr - 4th Qtr; $571K).

$1.388M Total

* Beginning FY99, part of this project was transferred to PE 0303126K, Long Haul Communications, project T82 to more appropriately reflect the work under Defense Information Systems Network.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastucture Engineering and Integration 0302019K

COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Defense-Wide C3 Architecture & Planning/T62		1.384	1.388	.814	.891	.973	.988	1.006	Contg	Contg

(U) FY 1999 Plans:

- Continue to perform Horizontal Integration Analysis and develop system engineering guidance for Horizontal Integration between the components of DISN, DMS, DII COE, GCCS, GCSS, DIIC2 and INFOSEC (1st Qtr - 4th Qtr; $814K).

  $.814M Total

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	1.373	1.464	1.542
Appropriated Value	1.399	1.464	
Adjustments to Appropriated Value	-.015	-.076	
Adjustments to Budget Year Since FY98 President's Budget			-.728
Current Budget Submit/President's Budget (FY99)	1.384	1.388	.814

Change Summary Explanation:

FY97 decrease due to below threshold reprogramming.

FY98 decrease due to Congressional adjustments to Defense-wide investment appropriation.

FY99 adjustment due to realignment of DISN portion of this project which was transferred to PE 0303126K, Long Haul Communications, project T82 and revised inflation rates.

* Beginning FY99, part of this project was transferred to PE 0303126K, Long Haul Communications, project T82 to more appropriately reflect the work under Defense Information Systems Network.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE Defense Information Infrastucture Engineering and Integration 0302019K					
COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Defense-Wide C3 Architecture & Planning/T62		1.384	1.388	.814	.891	.973	.986	1.006	Contg	Contg

C. Other Program Funding Summary: N/A

Acquisition Strategy: The MITRE Corporation, McLean, VA; Booz-Allen & Hamilton, Inc., Bethesda, MD;Logicon, Reston, VA.

D. Schedule Profile:

FY 1997 3rd Qtr: Develop design tools for ATM-based networks.
FY 1998 4th Qtr: Develop ATM traffic source characterizations.
FY 1999 4th Qtr: Develop capability to import operational topology and traffic from ATM-based networks.

* Beginning FY99, part of this project was transferred to PE 0303126K, Long Haul Communications, project T82 to more appropriately reflect the work under Defense Information Systems Network.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering and Integration 0302019K/Defense-Wide C3 Architecture & Planning/T62

A. Project Cost Breakdown: ($Millions)

	FY97	FY98	FY99
a. Systems Engineering	1.384	1.388	.814
TOTAL	1.384	1.388	.814

B. Budget Acquisition History and Planning Information:
Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities	CPAF CPFF MIPR					1.384	1.388	.814	Contg	Contg
Government Furnished Property: N/A										
TOTAL PROJECT						1.384	1.388	.814		

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE Defense Information Infrastructure Engineering & Integration 0302019K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Technology Advancement/A19		.355	.355	*0	0	0	0	0	Contg	Contg

A. Mission Description & Budget Item Justification:

The rapid evolution of the global military environment is driving a major evolution of the DOD force structure and military operations, requiring greater flexibility to meet the global warfighting requirements to rapidly project forces anywhere in the world. This project supports the Command, Control, Communications, Computers & Intelligence Reconnaissance Surveillance Model (C4ISR) model which is the most advanced analytical tool in DOD and is the only High Level Architecture (HLA) tool that can quantitatively assess C4ISR systems effects on military campaigns. Furthermore, the C4ISR Model is an integral part of the Sensor to Shooter Battle Management studies, as it is the only DOD model and simulation tool capable of fully interweaving C4ISR systems. The quantitative analysis provided accentuates the decision making process in new acquisitions, assessments of doctrine and design of operational activities.

(U) FY 1997 Accomplishments:

- o Initial integration with theater level force deployment models and analytical support for Vision 2000 objectives. (1st Qtr - 3rd Qtr) ($.355M Total)

(U) FY 1998 Plans:

- o Full integration with theater level force deployment models. (1st Qtr - 3rd Qtr) ($.355M Total)

(U) FY 1999 Plans:

- o Funds realigned from Technology Advancement/A19 to Modeling and Simulation/E62 in this same program element.

* Effective FY 1999, this project has been incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering & Integration 0302019K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Technology Advancement/A19		.355	.355	*0	0	0	0	0	Contg	Contg

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	.361	.366	.360
Appropriated Value	.361	.366	
Adjustments to Appropriated Value	-.006	-.011	
Adjustments to Budget Year Since FY 1998 President's Budget			
Current Budget Submit/President's Budget (FY 1999)	.355	.355	*

Change Summary Explanation:
FY97 change due to below threshold reprogramming.
FY98 change due to Congressional adjustment to Defense-wide Investment Appropriation.
FY99 change due to realignment of funds from Technology Advancement/A19 to Modeling and Simulation/E62.

C. Other Program Funding Summary:
N/A

* Effective FY 1999, this project has been incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering & Integration 0302019K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Technology Advancement/A19		.355	.355	*0	0	0	0	0	Contg	Contg

D. Schedule Profile:

Fiscal Year actual and planned events by quarter.

FY 1997 1st Qtr: Execute option year of technical support contract

FY 1998 1st Qtr: Execute option year of technical support contract

* Effective FY 1999, this project has been incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering & Integration 0302019K/Technology Advancement/A19

A. Project Cost Breakdown: ($ Millions)

Project Cost Categories	FY97	FY98	FY99
a. System analysis, design and programming	.355	.355	*
TOTAL	.355	.355	

B. Budget Acquisition History and Planning Information

N/A

* Effective FY 1999, this project has been incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE Defense Information Infrastructure Engineering & Integration 0302019K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Modeling and Simulation/E62		0	0	4.161	4.512	4.645	4.627	4.712	Contg	Contg

A. Mission Description & Budget Item Justification:

The rapid evolution of the global military environment is driving a major evolution of the DOD force structure and military operations, requiring greater flexibility to meet the global warfighting requirements to rapidly project forces anywhere in the world. This effort supports the DOD communications planning and investment strategy for the successful deployment of DOD information systems by performing a broad spectrum of activities in support of C4I programs. DISA has the lead in DOD for providing modeling and simulation to DOD decision makers--from the OSD level to the war fighter--with services and a suite of tools capable of identifying key decision points required to carry out their mission in the most effective way. This work is essential to achieve the DISA goal of quality information services at an affordable cost through a deliberate decision management process. These services and tools will: 1) provide modeling and analysis support to the key DISA programs and initiatives of DMS, DISN and Electronic Commerce 2) support initial INFOSEC/IW simulation efforts to give DISA the capability to determine the impact of IW attacks on the DII; 3) provide modeling and simulation assessment of the DII's ability to support CINCs, JCS, Services, and other Federal agencies' current and emerging C4ISR mission driven information requirements; 4)enhance the functionality of GOTS tools to engender an integrated environment in support of the modeling and simulation efforts of DISN, DMS, IW, the DII, GCSS and GCCS; 5) investigate methods linking these models with other GOTS used in information network modeling, design and analysis; 6) explore available COTS tools for developing models to assess information system architecture; 7) stimulate GCCS through induction of combat models and simulation into GCCS.

(U) FY 1997 Accomplishments:

- o Efforts previously funded under Project E61, MILSATCOM in PE 0303126K and Project A19, Technology Advancement in PE 0302019K.

(U) FY 1998 Plans:

- o Efforts are funded under Project E61, MILSATCOM in PE 0303126K and Project A19, Technology Advancement in PE 0302019K.

(U) FY 1999 Plans:

- o DISA Program Manager Support provides modeling and analysis support to the key DISA programs and initiatives of DMS, GCCS, GCSS, DISN and Electronic Commerce. ($1,298K)(1st Qtr - 4th Qtr)

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering & Integration 0302019K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Modeling and Simulation/E62		0	0	4.161	4.512	4.645	4.627	4.712	Contg	Contg

- o Warfighter and CINC Support provides modeling and simulation assessment to evaluate communications and related systems to support CINCs, JCS, Services, and other Federal agencies' current and emerging C4ISR mission driven information requirements ($1,635K) (1st Qtr - 4th Qtr)
- o Modeling and Simulation Tools provides DOD decision makers--from the OSD level to the warfighter--with a suite of tools capable of identifying key decision points required to carry out their mission in the most effective way. ($1,228K) (1st Qtr - 4th Qtr)

$4.161M Total

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	*	*	*
Appropriated Value			
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY 1998 President's Budget			
Current Budget Submit/President's Budget (FY 1999)	*	*	4.161

Change Summary Explanation:

* FY99 Funds realigned from PE 0302019K Technology Advancement/A19 and PE 0303126K MILSATCOM/E61.

C. Other Program Funding Summary:

	FY97	FY98	FY99
O&M	0	0	4.860

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering & Integration 0302019K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Modeling and Simulation/E62		0	0	4.161	4.512	4.645	4.627	4.712	Contg	Contg

D. Schedule Profile:

Fiscal Year actual and planned events by quarter.

	FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4
Execute option year of MITRE support contract												X
SAIC support contract												X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering & Integration 0302019K

A. Project Cost Breakdown ($Millions)

	FY97	FY98	FY99
Project Cost Categories			
Modeling & Simulation	0	0	4.161
Total	0	0	4.161

B. Budget Acquisition History and Planning Information: N/A

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastucture Engineering and Integration 0302019K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Special Projects/T64		1.159	1.039	0*	0	0	0	0	Contg	Contg

A. Mission Description & Budget Item Justification:

All aspects of this project are classified and require special access. Therefore, information on this project is not contained in this document but can be obtained upon request.

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	1.114	1.200	1.246
Appropriated Value	1.155	1.200	
Adjustments to Appropriated Value	+.004	-.161	
Adjustments to Budget Year Since FY98 President's Budget			
Current Budget Submit/President's Budget (FY99)	1.159	1.039	0*

Change Summary Explanation:

FY97 increase due to below threshold reprogramming.

FY98 decrease due to Congressional adjustments to Defense-wide investment appropriation.

C. Other Program Funding Summary:

Related RDT&E: PE 0303131K, Minimum Essential Emergency Communications Network (MEECN).

D. Schedule Profile:

Information will be made available upon request.

* Beginning FY99, this project is realigned to PE 0303131K, Minimum Essential Emergency Communications Network, (MEECN), project T64.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering and Integration 0302019K/Special Projects/T64

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY97	FY98	FY99
a. Systems Engineering	1.159	1.039	
TOTAL	1.159	1.039	0*

B. Budget Acquisition History and Planning Information

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
MITRE	SS/CPFF					1.159	1.039		Contg	Contg
Government Furnished Property: N/A										
TOTAL PROJECT						1.159	1.039			

*Beginning FY99, this project is being realigned to PE 0303131K, Minimum Essential Emergency Communications Network, project T64.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering and Integration/0302019K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
CINC/JTF C4 Integration/T66		1.633	1.337	0*	0	0	0	0	0	2.970

A. Mission Description & Budget Item Justification:

The Chairman, Joint Chiefs of Staff Instruction (CJCSI) 6111.01, C4 Planning, Assessment, and Evaluation Process, establishes policy guidelines and assigns responsibilities for modernization planning, analytical assessment, and operational evaluation of C4 systems. It provides general guidance to the CINCs, sub-unified commands, Service components, and the Joint Staff for coordinating actions required to field new C4 systems, integrating systems architectures, modifying existing systems, and assessing short and long range C4 capabilities or deficiencies. It is the basis for CINC C4 inputs to the Joint Strategic Planning System (JSPS), PPBS, the CINCs Integrated Priority List (IPL), the Joint Monthly Readiness Report, and the Joint Warfighter Capabilities Assessment (JWCA). The process advocates documentation of short, middle, and long range C4 objectives, anticipating future requirements and serving as regional C4 road map. CJCSI 6111.01 specifically identifies DISA as the responsible agent for providing the following technical and automation support to the Joint Staff, J-6, and the CINCs:

(1) Development and maintenance of automated C4 analysis tools.
(2) Performing C4 studies or analysis in support of the CINCs or Joint Staff.
(3) Providing a secure electronic repository for C4 planning, assessment, and evaluation documents.

(U) FY 1997 Plans:

- Transition Road Map (TRM) Support to USSOUTHCOM: This work consists of updating and integrating the USSOUTHCOM TRM with C4ISR (Intelligence) issues; in addition to developing the CINC Annual C4 Assessment. This task also involves converting the TRM along with other supporting C4 assessment documentation to Hyper Text Markup Language (HTML) and loading it on to their home page on the SIPRNET. (1st Qtr - 4th Qtr; $250K)

* Beginning FY99, this project is being converted from RDT&E to O&M.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE Defense Information Infrastructure Engineering and Integration/0302019K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
CINC/JTF C4 Integration/T66		1.633	1.337	0*	0	0	0	0	0	2.970

(U) FY 1997 Plans (cont'd):

- C4I Assessment and Planning Support to USACOM: This work consists of developing the FY97 USACOM C4 Planning, Assessment, and Evaluation Master Plan, along with the CINC Annual C4 Assessment. Both documents will be converted to HTML and loaded on to a home page on the SIPRNET with supporting C4 related documentation. (1st Qtr - 4th Qtr; $375K)
- C4I Assessment and Planning Support to USSOCOM: This work consists of developing the CINC Annual C4 Assessment, converting it to HTML, and loading it on to a home page on the SIPRNET with supporting C4 related documentation. (1st Qtr - 4th Qtr; $375K)
- C4 PA&E Automation Support: The objective of this task is to design, implement, and maintain CINC and Joint Staff home pages over the INTERNET World Wide Web. This task is inherent to supporting all CINCs and the Joint staff. (1st Qtr - 4th Qtr; $283K)
- C4 Assessment Tool: This task involves development of an automated C4 assessment tool consisting of a database populated with criteria that serve as a strategic foundation for the development of warfighter objectives and capabilities for CINC USSOUTHCOM, USACOM, and USSOCOM. This criteria will be extracted from documents such as the Joint Monthly Readiness Report (JMRR), IPL, Joint Mission Essential Task List (JMETL), Joint Universal Lessons Learned System (JULLS), and JWCA issues. The CINCs will have the ability to weigh the relative value of each individual criteria, based on their mission and functions, producing a rank order listing of their C4 capabilities or deficiencies which they can incorporate into their JWCA submission to the Joint Staff. It would provide a uniform methodology across all the CINCs and tie the C4 PA&E process into the overall theater architecture through an automated means. The tool would run over the SIPRNET. (1st Qtr - 4th Qtr; $350K)

$1.633M Total

* Beginning FY99, this project is being converted from RDT&E to O&M.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering and Integration/0302019K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
CINC/JTF C4 Integration/T66		1.633	1.337	0*	0	0	0	0	0	2.970

(U) FY 1998 Plans:

- o C4I Assessment and Planning Support to Joint Staff and Unified CINCs: This work consists of developing the FY98 C4 Planning, Assessment, and Evaluation Master Plan for all CINCs in addition to development of their CINC Annual C4 Assessment. These deliverables will be converted to Hyper Text Markup Language (HTML) and loaded on to CINC home pages on the SIPRNET with supporting C4 related documentation. Support to the Joint Staff will be similar. (1st Qtr - 4th Qtr; $1,337K)

  $1.337M Total

Acquisition Strategy: Logicon, Reston, VA

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	1.620	1.691	1.823
Appropriated Value	1.679	1.691	
Adjustments to Appropriated Value	-.046	-.354	
Adjustments to Budget Year Since FY98 President's Budget			
Current Budget Submit/President's Budget (FY99)	1.633	1.337	0*

Change Summary Explanation:

FY97 decrease due to below threshold reprogramming.

FY98 decrease due to Congressional adjustments to Defense-wide investment appropriation.

* Beginning FY99, this project is being converted from RDT&E to O&M.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering and Integration/0302019K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
CINC/JTF C4 Integration/T66		1.633	1.337	0*	0	0	0	0	0	2.970

C. Other Program Funding Summary:

	FY 97	FY98	FY99
O&M	0	0	.600

D. Schedule Profile:

FY1997 1st Qtr: 1st Draft of SOUTHCOM Transition Roadmap (TRM)
2nd Qtr: 1st Draft of ACOM C4 PA&E Master Plan
1st Draft of SOCOM C4 PA&E Master Plan
C4 PA&E Automation Support
Final Draft of SOUTHCOM TRM
Preliminary design of the C4 Assessment Tool
3rd Qtr: C4 PA&E Automation Support
Development of the C4 Assessment Tool
4th Qtr: C4 PA&E Automation Support
Complete development of the C4 Assessment Tool
CINC C4 Annual Summary

* Beginning FY99, this project is being converted from RDT&E to O&M.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering and Integration/0302019K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
CINC/JTF C4 Integration/T66		1.633	1.337	0*	0	0	0	0	0	2.970

D. Schedule Profile (Continued):

FY1998 1st Qtr: 1st Draft of each CINCs C4 PA&E Plan
C4 PA&E Automation Support
C4 Assessment Tool Operation
2nd Qtr: Final Draft of each CINCs C4 PA&E Plan
C4 PA&E Automation Support
C4 Assessment Tool Operation
3rd Qtr: C4 PA&E Automation Support
C4 Assessment Tool Operation
4th Qtr: C4 PA&E Automation Support
C4 Assessment Tool Operation
CINC C4 Annual Summary

* Beginning FY99, this project is being converted from RDT&E to O&M.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Information Infrastructure Engineering and Integration 0302019K/CINC/JTF C4 Integration/T66

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY97	FY98	FY99
a. Systems Engineering	1.633	1.337	0*
TOTAL	1.633	1.337	

B. Budget Acquisition History and Planning Information:
Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities	CPAF CPFF MIPR					1.633	1.337	0	0	2.970
Government Furnished Property: N/A										
TOTAL PROJECT						1.633	1.337			

*Beginning FY99, this project is being converted from RDT&E to O&M.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total PE Cost: PE 0303126K		22.613	13.693	11.561	1.338	1.450	1.477	1.510	Contg	Contg
Commercial Satellite Communications Init./E25		7.463	0	0	0	0	0	0	0	7.463
Leading Edge Pilot Info. Technologies/E26		2.981	3.106	0*	0	0	0	0	Contg	Contg
MILSATCOM & DII Planning/E61		4.211	4.272	0**	0	0	0	0	Contg	Contg
Defense Info. Systems Network Acquisition/H20		7.496	5.867	10.333	0	0	0	0	0	23.696
DISN Systems Engineering Support/T82 ***		0	0	1.228	1.338	1.450	1.477	1.510	Contg	Contg
White House Situation Support Staff/W90 ****		0.462	0.448	0	0	0	0	0	0	.910

A. Mission Description and Budget Item Justification: This program element funds system engineering and test & evaluation for the Defense Communications System (DCS)/Defense Information Systems Network (DISN) which provides Defense-wide communications for the day-to-day operations of the DOD and serves as the core of DOD wartime communications for the National Command Authorities (NCA), the Joint Chiefs of Staff (JCS), the Commanders-in-Chief (CINCs), and other critical users. This PE provides for the engineering to consolidate the operational communications networks into DISN and for the technologies, commercial equipments and service offerings to reduce the cost of the DCS/DISN and to provide valuable new information services to users.

The PE consists of 6 projects. Project E25 develops and implements a commercial satellite communications system pilot program in support of the DISN. Project E26 supports Leading Edge Pilot Services which include information for worldwide DOD user and research communities. Project E61 supports the planning and decision management to provide

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

responsive communications and information services to support evolving military missions. Project H20 covers DISN architecture and integration activities and service contracts. Project T82 covers DISN Systems Engineering Support which plans and promotes an expeditious and cost effective development of needed information technology capabilities by targeting R&D efforts to DOD mission needs. Project W90 supports engineering to provide full level crisis management capabilities for the White House. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.

* Beginning in FY 1999, Project E26, Leading Edge Pilot Information Technology is being realigned to PE 0604764K, Advanced Information Technology Services Joint Program Office.

** Beginning in FY 1999, Project E61, MILSATCOM & DII Planning is being incorporated into Project E62, Modeling & Simulation in PE 0302019K, Defense Information Infrastructure Engineering and Integration.

*** Project T82, DISN Systems Engineering Support is not a new start. It combines Project T80, Technology Assessment and Insertion from PE 0208045K and part of Project T62, Defense-Wide C3 Architecture and Planning from PE 0302019K.

**** Beginning in FY 1999, Project W90, White House Situation Support Staff efforts are realigned to the O&M appropriation.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E25 Commercial Satellite Communications Initiative Follow-On		7.463	0	0	0	0	0	0	0	7.463

A. Mission Description & Budget Item Justification:

(U) This project develops and implements pilot capabilities for a proof of concept using available commercial satellite communications capabilities. This program establishes a seed pilot network, a tool for networking planning, development of a bandwidth management capability for leased whole transponders, and validation of a concept to reduce DOD commercial satellite telecommunications costs by bundling of individual circuit leases and by consolidating telecommunications requirements on whole transponders. The pilot network will offer a variety of services that are presently not available, such as downloading high data rate information from airborne vehicles via commercial satellites to processing centers, and dissemination of information to remote users. This program will demonstrate how to integrate commercial satellite capabilities with the Defense Information System Network (DISN) and Defense Satellite Communications System (DSCS).

(U) FY 1997 Accomplishments:

- o Expanded pilot services ($7,463K) (1st Qtr - 4th Qtr)
- o Validated concepts (1st Qtr - 4th Qtr)
  - -sustainable customer base established, integration with DSCS and DISN, final reports and business plan

  $7.463M Total

Acquisition Strategy: All services and equipment competitively procured.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E25 Commercial Satellite Communications Initiatives Follow-On		7.463	0	0	0	0	0	0	0	7.463

B. Program Change Summary

	FY 97	FY 98	FY 99	Total Cost
Previous President's Budget (FY 1998)	7.464	0	0	7.464
Appropriated Value	7.636			
Adjustments to Appropriated Value	-.173			
Adjustments to Budget Year Since FY 1998 President's Budget				
Current Budget Submit/President's Budget (FY 1999)	7.463	0	0	7.463

Change Summary Explanation:
Funding: FY97 reduction due to below threshold reprogramming.

Schedule: N/A
Technical: N/A

C. Other Program Funding Summary: N/A

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E25 Commercial Satellite Communications Initiatives Follow-On		7.463	0	0	0	0	0	0	0	7.463

D. Schedule Profile:

Fiscal Year actual and planned events by quarter.

	FY 1996				FY 1997			
	1	2	3	4	1	2	3	4
T&E milestones:								
Validated Bmc/Control					X			

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications/E25/ COMMERCIAL SATELLITE COMMUNICATIONS INITIATIVES FOLLOW-ON

A. Project Cost Breakdown ($Millions)

Project cost categories	FY 97	FY 98	FY 99
1. Travel	.025	0	0
2. Management Support Services	.300	0	0
3. Engineering & Technical Services	7.138	0	0
Total	7.463	0	0

B. Budget Acquisition History and Planning Information: N/A

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E26 Leading Edge Pilot Information Technology		2.981	3.106	0*	0	0	0	0	Contg	Contg

A. Mission Description & Budget Item Justification: Leading Edge Pilot Services are information transport and value added services which are not available from the Defense Information Infrastructure (DII) and for which customers are willing to assume some of the risk associated with development of initial deployment. These services may include information processing, storage, and retrieval; communications (voice, data, video, multimedia); and security technologies and applications in command, control, and intelligence for the worldwide DOD user and research communities. This program supports the acquisition and delivery of consolidated advanced technology information services in a maximally competitive environment (as cost effectively as is possible) to customers with operational needs that exceed those capabilities currently available from the DII. The resulting services will be managed in the operational context of the single information DII, operated and maintained by DISA. The DARPA/DISA Advanced Information Technology Services Joint Program Office (AITS-JPO) will integrate advanced technology research and development efforts from DARPA and others, focus the flow of these technologies from R&D to widespread experimental uses, to leading edge and from leading edge to maximize the potential for migration into the DII and the National Information Infrastructure (NII). The DISA funding under this project will allow the AITS-JPO to leverage research and development funding and efforts.

(U) FY 1997 Accomplishments:

- o Monitor candidate information system technologies and capabilities which are still in research and development for potential integration into the AITS-JPO Pilot Service portfolio ($100K) (1st Qtr - 4th Qtr)
- o Participate, initiate, expedite, or collaborate in Advanced Concepts Technology Demonstrations (ACTD's) in support of leading edge technology services. ($100K) (1st Qtr - 4th Qtr)
- o Evaluate available candidate AIT services versus user requirements and select promising technologies for pilot service ($827K) (1st Qtr - 4th Qtr)
- o Develop and coordinate plans and strategies for migration of Leading Edge Services into the DII. ($950K) (1st Qtr - 4th Qtr)
- o Migrate selected modeling and simulation services to the DII. ($400K) (1st Qtr - 4th Qtr)

* Beginning FY99, this project is being realigned to PE 0604764K, AITS - JPO, project T26.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E26 Leading Edge Pilot Information Technology		2.981	3.106	0*	0	0	0	0	Contg	Contg

(U) FY 1997 Accomplishments (Continued):

- Integrate first production key agile cell encryption devices for modeling and simulation users ($239K) (1st Qtr - 2nd Qtr)
- Enhance emerging bandwidth-aware and end-to-end security pilot services ($165K) (1st Qtr - 4th Qtr).
- Integrate ATM multicast services for modeling and simulation users ($200K) (1st Qtr - 4th Qtr)

$2.981M Total

(U) FY 1998 Plans:

- Develop and implement emerging technologies in order to identify potential candidates to migrate into advanced DOD-wide applications and services. ($1,060K) (1st Qtr - 4th Qtr)
- Evaluate and implement emerging standards and protocols into pilot services network ($1,046K) (1st Qtr - 4th Qtr)
- Develop and coordinate plans and strategies for migration of leading edge services to the DII. ($1,000K) (1st Qtr - 4th Qtr)

$3.106M Total

Acquisition Strategy: Develop and implement statements of work and task orders to support FFRDC and SETA Contracts.

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	2.854	3.060	3.114
Appropriated Value	3.029	3.060	
Adjustments to Appropriated Value	-.048	+.046	
Adjustments to Budget Year Since FY98 President's Budget			
Current Budget Submit/President's Budget (FY 1999)	2.981	3.106	0*

Change Summary Explanation:

FY97 decrease due to below threshold reprogramming.

FY98 increase due to below threshold reprogramming.

* Beginning FY99, this project is being realigned to PE 0604764K, AITS-JPO, project T26.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E26 Leading Edge Pilot Information Technology		2.981	3.106	0*	0	0	0	0	Contg	Contg

C. Other Program Funding Summary:

	FY97	FY98	FY99
O&M	2.658	2.736	0*

D. Schedule Profile

Fiscal Year actual and planned events by quarter.

	FY97				FY98				FY99
	1	2	3	4	1	2	3	4	
SOW for SETA Support	X		X		X		X		

* Beginning FY99, this project is being realigned to PE 0604764K, AITS-JPO, project T26.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications/E26 Leading Edge Pilot Info Tech

A: Project Cost Breakdown ($Millions)

	FY97	FY98	FY99
Project Cost Categories			
Modeling & Simulation	2.981	3.106	
Total	2.981	3.106	0*

B: Budget Acquisition History and Planning Information: N/A

* Beginning FY99, this project is being realigned to PE 0604764K, AITS-JPO, project T26.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E61 MILSATCOM and Defense Information Infrastructure (DII) Planning		4.211	4.272	0*	0	0	0	0	Contg	Contg

A. Mission Description & Budget Item Justification: The rapid evolution of the global military environment is driving a major evolution of the DOD force structure and military operations, requiring greater flexibility to meet the global warfighting requirements to rapidly project forces anywhere in the world. This effort supports the DOD communications planning and investment strategy for the successful deployment of DOD information systems by performing a broad spectrum of activities in support of C4I programs. DISA has the lead in DOD for providing modeling and simulation to DOD decision makers--from the OSD level to the war fighter--with services and a suite of tools capable of identifying key decision points required to carry out their mission in the most effective way. This work is essential to achieve the DISA goal of quality information services at an affordable cost through a deliberate decision management process. These services and tools will: 1) provide modeling and analysis support to the key DISA programs and initiatives of DMS, DISN and Electronic Commerce; 2) support initial INFOSEC/IW simulation efforts to give DISA the capability to determine the impact of IW attacks on the DII; 3) provide modeling and simulation assessment of the DII's ability to support CINCs, JCS, Services, and other Federal agencies' current and emerging C4ISR mission driven information requirements; 4)enhance the functionality of GOTS tools to engender an integrated environment in support of the modeling and simulation efforts of DISN, DMS, IW, the DII, GCSS and GCCS; 5) investigate methods linking these models with other GOTS used in information network modeling, design and analysis; 6) explore the available COTS tools appropriate for developing a model that will be used for sizing and performance assessment of information system architecture; 7) stimulate GCCS through induction of combat models and simulation into GCCS.

(U) FY97 Accomplishments:

o Integrated Communication Data Base (ICDB) ($369K) (1st Qtr - 3rd Qtr)

o C4I Simulation Integration: Migrate to a common family of models for training, planning and assessment. ($985K) (1st Qtr - 4th Qtr)

o C4I/DII Assessment: Provide assessment support to DISA and the operational community. ($465K) (1st Qtr - 4th Qtr)

o Joint Staff Support: Provide analysis and decision management support to the warfighters in the realization of C4IFTW. ($1,612K) (1st Qtr - 4th Qtr)

o Integrated Network Assessments: Assess military and commercial telecommunications alternatives to resolve programmatic issues. ($550K) (1st Qtr - 4th Qtr)

o C4I Model: Develop a DOD-wide C4I simulator to support mission test, training and operational exercises. ($230K) (1st Qtr - 4th Qtr)

$4.211M Total

* Effective FY 1999, this project is incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E61 MILSATCOM and Defense Information Infrastructure (DII) Planning		4.211	4.272	0*	0	0	0	0	Contg	Contg

(U) FY98 Plans:
- o Integrated Communications Data Base (ICDB) ($459K) (1st Qtr - 4th Qtr)
- o C4I Simulation Integration ($305K) (1st Qtr - 4th Qtr)
- o C4I/DII Assessment ($538K) (1st Qtr - 4th Qtr)
- o Joint Staff Support ($1891K) (1st Qtr - 4th Qtr)
- o Integrated Network Assessments ($750K) (1st Qtr - 4th Qtr)
- o C4I Model ($329K) (1st Qtr - 4th Qtr)

$4.272M Total

(U) FY99 Plans:
- o This project will transfer to Program Element 0302019K, Project E62 beginning in FY 1999.

Acquisition Strategy: SETA support contract (CPFF-LOE) was competitively awarded and consists of a base year and four option years. FFRDC support is procured sole source through the sponsoring Service (e.g., the Army for MITRE)

* Effective FY 1999, this project is incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E61 MILSATCOM and Defense Information Infrastructure (DII) Planning		4.211	4.272	0*	0	0	0	0	Contg	Contg

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	4.211	4.797	4.883
Appropriated Value	4.671	4.797	
Adjustments to Appropriated Value	-.460	-.525	
Adjustments to Budget Year Since FY 1998 President's Budget			
Current Budget Submit/President's Budget (FY 1999)	4.211	4.272	0*

Change Summary Explanation:

FY97 change due to below threshold reprogramming.

FY98 change due to Congressional adjustments to Defense-wide Investment Appropriation.

FY99 change is due to realignment of funds from Program Element 0303126K, Project E61 to Program Element 0302019K, Project E62.

C. Other Program Funding Summary

	FY97	FY98	FY99
O&M	3.579	3.321	0

* Effective FY 1999, this project is incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	R-1 ITEM NOMENCLATURE PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project E61 MILSATCOM and Defense Information Infrastructure (DII) Planning		4.211	4.272	0*	0	0	0	0	Contg	Contg

D. Schedule Profile

Fiscal Year actual and planned events by quarter.

	FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4
Execute option year of MITRE support contract	X	X			X							
SAIC support contract						X						

* Effective FY 1999, this project is incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications/E61/MILSATCOM

A. Project Cost Breakdown ($Millions)

	FY97	FY98	FY99
Project Cost Categories			
Modeling & Simulation	4.211	4.272	*
Total	4.211	4.272	

B. Budget Acquisition History and Planning Information: N/A

* Effective FY 1999, this project is incorporated into Project E62, Modeling and Simulation in PE 0302019K.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project H20 Defense Information System Network (DISN) Acquisition		7.496	5.867	10.333	0	0	0	0	0	23.696

A. Mission Description & Budget Item Justification:

DISN provides the Warfighters and the Warfighting Commanders in Chief (CINCs), Joint Task Force (JTF) Commanders and Combined Task Force (CTF) Commanders with a robust C4I information transport infrastructure, this infrastructure is the primary such subset of the DII. It will seamlessly span strategic, space, and tactical domains to provide the interoperable telecommunications connectivity and value added services required to plan, implement, and support any operational missions anytime and anywhere. DISN will provide the warfighters with U.S. Government controlled and secured voice, data, imagery, video teleconferencing, and dedicated point-to-point transmission services, and enable seamless information transfer processes. With its integrated requirements databases, DISN directly supports national defense C4I decision-making requirements, Corporate Information Management (CIM) functional business areas, and U.S. efforts to maintain the world-wide lead in defensive information warfare. DISN's primary program efforts described below are CONUS, Hawaii Information Transfer System (HITS), DEPLOYED, PACIFIC, EUROPE, Automated Tools for DISN Service Management, Mobile Satellite System (MSS), Information Dissemination Management (IDM), DISN Architecture and Integration, DISN C4I Requirements and Assessment (ICDB), Global Broadcast Service (GBS) and DISN Commercial Satellite Communication Initiative (CSCI).

(U) FY 1997 Accomplishments:

- o MSS Security firewall design, functional definition for deployable gateway, and MSS secure handset design. ($2,749K) (3rd Qtr - 3rd Qtr)
- o Designed the initial GFI prototype to provide high bandwidth to deployed warfighter, demonstrating ATM over international transmission (E1, E3, OC-3c/STM-1, etc.), ATM for Commercial Satellite & DSCS, and ATM Tactical/Strategic Interface. ($2,476K) (1st Qtr - 1st Qtr)
- o Developed Web based automated tools for deliberate and crisis planning. ($100K) (1st Qtr - 1st Qtr)
- o Conduct operational proof-of-concept at selected sites demonstrating high bandwidth (155 Mbs OC-3c/STM-1) infrastructure with the bundling of voice, video, and data over ATM. ($1,766K) (1st Qtr - 2nd Qtr)
- o Develop acquisition strategy for including commercial fiber in the DISN Long Haul operations and develop concept of operation for extending that infrastructure inland to support deployed forces. ($100K) (2nd Qtr - 2nd Qtr)
- o Develop an on-call contingency GFI capability that provides information required to respond quickly to worldwide contingencies ($100K) (2nd Qtr - 2nd Qtr)
- o Provided Technical Support to DISN Architecture & Integration Group ($205K) (2nd Qtr - 2nd Qtr)

$7.496M Total

FY 1998 Plans

- o Develop and field early operational capability -1 (EOC-1) in Pacific Command and initiate development of EOC-2 in the Indian Ocean AOR ($3,700K) (2nd Qtr -2nd Qtr)
- o Project Management, Systems Engineering and Network Integration ($1,366K) (2nd Qtr - 2nd Qtr)
- o Develop IDM systems concepts ($188K) (1st Qtr - 1st Qtr)
- o Develop GBS systems concepts ($188K) (1st Qtr - 1st Qtr)
- o GBS/IDM Integration and Support ($425K) (1st Qtr - 1st Qtr)

$5.867M Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project H20 Defense Information System Network (DISN) Acquisition		7.496	5.867	10.333	0	0	0	0	0	23.696

(U) FY 1999 Plans:
o Complete development and fielding of EOC-2 in Indian Ocean AOR and develop and field EOC-3 in European Command ($8,432K) (1st Qtr - 1st Qtr)
o Project Management, Systems Engineering and Network Integration ($1,400K) (1st Qtr - 1st Qtr)
o Update and refine IDM systems concept ($195K) (1st Qtr - 1st Qtr)
o Develop wideband satelite communications (gapfiller and emerging commercial) implementation ($306K) (2nd Qtr - 2nd Qtr)
$10.333M Total

Acquisition Strategy:
FY97: SS Loral, Motorola, Boeing, Booz-Allen for IDM PMO start-up
FY98: GSA contract to Booz-Allen for IDM PMO support
FY99: GSA contract to Booz-Allen for IDM PMO support

B. Program Change Summary

	FY97	FY98	FY99	Total Cost
Previous President's Budget (FY 1998)	7.496	6.200	6.800	20.496
Appropriated Value	7.558	6.200		
Adjustments to Appropriated Value	-.062	-.333		
Adjustments to Budget Year Since FY 1998 President's Budget			3.533	
Current Budget Submit/President's Budget (FY 1999)	7.496	5.867	10.333	23.696

Change Summary Explanation:

Funding: FY 97 change due to below threshold reprogramming.
FY 98 change due to Congressional adjustment to Defense-wide Investment Appropriation.
FY 99 change due to increased emphasis in this area by the Department.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project H20 Defense Information System Network (DISN) Acquisition		7.496	5.867	10.333	0	0	0	0	0	23.696

C. Other Program Funding Summary

	FY97	FY98	FY99	Total Cost
O&M	$15.612	$31.826	$47.243	$94.681
PROCUREMENT	$20.002	$ 9.769	$19.888	$49.659

D. Schedule Profile

(U) FY 1997

SS Loral Contract Support	4th QTR
Motorola Contract Award	4th QTR
Global Fiber Initiative Contract Award	4th QTR

(U) FY 1998

DSS-G IDM Contract Support	2nd QTR
GSA IDM Contract Support	2nd QTR
MITRE Support	1st QTR

(U) FY 1999

DSS-G IDM Contract Support	1st QTR
GSA IDM Contract Support	1st QTR
SAIC Contract Support	1st QTR

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications/H20/DISN

A. Project Cost Breakdown

Project Cost Categories ($Millions)	FY97	FY98	FY99
a. Engineering and Technical Services	7.496	5.867	10.333
Total	7.496	5.867	10.333

B. Budget Acquisition History and Planning Information

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Budget FY97	Budget FY98	Budget FY99	Budget To Complete	Total Program
Product Development Organizations :									
Other Contracts					6.037	5.491	10.145	0	21.673
Support and Management Organizations:									
MITRE	Procurement Work Directive (PWD)				1.459	.376	.188	0	2.023
	Total				7.496	5.867	10.333	0	23.696

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
DISN Systems Engineering Support/T82		0	0	1.228*	1.338	1.450	1.477	1.510	Contg	Contg

A. Mission Description & Budget Item Justification:

This project plans and promotes an expeditious and cost effective development of needed information technology capabilities by targeting R&D efforts to DOD mission needs and leveraging on DOD and industry developments. It provides for the transition of new technologies into leading edge and core information services. Additionally, this project supports Defense Information Systems Network (DISN) by: (a) addressing the fixed common-user systems, treating the long haul communications, base-level, and rear-area tactical communications as an end-to-end system with particular focus on user requirements, technology and standards, features and services, security, and network management; and (b) focusing on current and future DISN security initiatives for communications.

(U) FY 1999 Plans:

- Engineering for Network Engineering Assessment Facility (NEAF) (1st Qtr - 4th Qtr; $200K).
- Engineering for ATM systems for Unclassified Internet Protocol Router Network (NIPRNET) and Global Combat Support Systems (GCSS)(1st Qtr - 4th Qtr; $398K).
- Validate traffic source models for specific ATM applications and develop capability to import operational topology and traffic information from ATM-based networks (1st Qtr - 4th Qtr; $630K).

$1.228M Total

* This project is not a new start. This project merges Technology Assessment and Insertion/T80 (PE 0208045K) and part of project Defense-Wide C3 Architecture and Planning/T62 (PE 0302019K).

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
DISN Systems Engineering Support/T82		0	0	1.228*	1.338	1.450	1.477	1.510	Contg	Contg

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)			0*
Appropriated Value			
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY98 President's Budget			+1.228
Current Budget Submit/President's Budget (FY99)			1.228

Change Summary Explanation:
FY99 adjustment due to realignment of project from PE 0302019K and PE 0208045K.

C. Other Program Funding Summary: N/A

D. Schedule Profile:

FY 1999: All Qtrs: Engineering for NEAF
Engineering for ATM systems for NIPRNET and GCSS.
4th Qtr: Develop capability to import operational topology and traffic from ATM-based networks.

* This project is not a new start. This project merges Technology Assessment and Insertion/T80 (PE 0208045K) and part of project Defense-Wide C3 Architecture and Planning/T62 (PE 0302019K).

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications/T82 DISN Systems Engineering Support

A. Project Cost Breakdown: ($Millions)

	FY97	FY98	FY99*
Systems Engineering			1.228

B. Budget Acquisition History and Planning Information:

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities	CPAF CPAF MIPR							1.228	Contg	Contg
TOTAL PROJECT								1.228		

In House Engineering & Technical Support: N/A

* This project is not a new start. This project merges Technology Assessment and Insertion/T80 (PE 0208045K) and part of project Defense-Wide C3 Architecture and Planning/T62 (PE 0302019K).

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project W90 White House Situation Support Staff		.462	.448	0	0	0	0	0	0	.910

A. Mission Description and Budget Item Justification:

This project ensures that full level crisis management capabilities are provided to the President, Vice President, the National Security Advisor and his staff. This effort emphasizes information exchange and display and procedures. This project is part of the National Security Information and Situation Management System (NSI & SMS).

(U) FY 1997 Accomplishmets:

o Study to increase capabilities of communications systems for the White House Situation Room. ($462K) (2nd Qtr - 3rd Qtr)

(U) FY 1998 Plans:

o Continue development of Decision Support Systems for the White House Situation Room. ($448K) (2nd Qtr - 3rd Qtr)

(U) FY 1999 Plans:

o Effort realigned to the O&M appropriation.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project W90 White House Situation Support Staff		.462	.448	0	0	0	0	0	0	.910

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	.454	.463	.457
Appropriated Value	.467	.463	
Adjustments to Appropriated Value	-.005	-.015	
Adjustments to Budget Year since FY 1998 President's Budget			-.457
Current Budget Submit/President's Budget (FY 1999)	.462	.448	0

Change Summary Explanation:

Funding: FY97 reduction due to below threshold reprogramming.
FY98 change due to Congressional adjustment to Defense-wide Investment Appropriation.
FY99 change due to realignment of effort to the O&M appropriation.

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary:

	FY97	FY98	FY99	To Complete	Total Cost
Procurement Line P-1	1.600	1.810	1.703	Contg.	Contg.
O&M	3.438	2.609	4.219	Contg.	Contg.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)										DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE PE 0303126K/Long Haul Communications					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project W90 White House Situation Support Staff		.462	.448	0	0	0	0	0	0	.910

D. Schedule Profile

(U) FY1997
Contract Milestones:
Contract/Study delivered (3rd qtr FY97)

(U) FY1998
Contract Milestones:
Contract/Study to be delivered (3rd qtr FY98)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** PE 0303126K/Long Haul Communications/W90/WHSSS

A. Project Cost Breakdown ($Millions)

Project Cost Categories	FY97	FY98	FY99
a. Engineering and Technical Services	.462	.448	0

B. Budget Acquisition History and Planning Information: N/A

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Support of the NCS/P.E. 0303127K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total 0303127K Cost		3.808	4.405	4.428	4.344	5.137	5.218	5.312	Cont.	Cont.
Enhanced Satellite Capability/N092		.428	.425	.420	.420	.430	.435	.440	Cont.	Cont.
Interoperability/N088		1.558	1.706	1.723	1.689	2.427	2.483	2.557	Cont.	Cont.
Information Assurance/N094		.503	.521	.525	.525	.530	.540	.550	Cont.	Cont.
Advanced Intelligent Network/N091		1.115	1.298	1.300	1.240	1.280	1.285	1.290	Cont.	Cont.
NS/EP Telecommunications Integration Support/N095		.204	.455	.460	.470	.470	.475	.475	Cont.	Cont.

A. Mission Description and Budget Item Justification

This program element supports Executive Order 12472 of 3 April 1984 which assigns the NCS the mission of assisting the President, the National Security Council, the Office of Science and Technology Policy, and the Office of Management and Budget, in exercising their wartime and non-wartime telecommunications functions and responsibilities, and coordinating the planning for, and provisioning of, National Security and Emergency Preparedness (NS/EP) telecommunications for the federal government under all circumstances. To attain this objective, there are several National Security Decision Directives which provide additional guidance to the NCS which require that initiatives be developed that will improve the survivability and interoperability of the commercial telecommunications systems that support national security and emergency preparedness requirements, enhance the survivability and endurability of U.S. commercial satellites, and provide communications support for Government agencies which have responsibilities to carry out their essential functions in any emergency. Additionally, this program element will support programs which will help to ensure that the evolving National Information Infrastructure will meet the needs of government NS/EP users. Enhanced Satellite Capability explores developing satellite technologies and applications which include experiment preparation and terminal modification to experiment with NASA's Advanced Communications Technology Satellite (ACTS), preparing secure voice experiments over American Mobile Satellite Corporation Mobile Satellite (MSAT), and the analysis of the newly proposed low earth systems. Interoperability supports the Federal Telecommunications Standards Program, and ensures interoperability among emerging government communications systems. Information Assurance supports the Public Switched Network (PSN) in mitigating hacker threats. Advanced Intelligent Network employs newly developed processing capabilities to tailor the extensive telecommunications resources of the PSN. NS/EP Telecommunications Integration provides a test and evaluation program to assess and evaluate the operational readiness and capabilities of NS/EP telecommunications programs, initiatives, and emerging technologies. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Enhanced Satellite Capability (ESC)/N092		.428	.425	.420	.420	.430	.435	.440	Cont.	Cont.

A. Mission Description & Budget Item Justification:

This project will provide greatly enhanced and cost-effective telecommunications for all operational environments with the incorporation of new satellite communication technologies. ESC will acquire knowledge of evolving technologies; support development of National Security Telecommunications Advisory Committee (NSTAC) initiatives; evaluate new commercial satellite capabilities; assure that industry is aware of NS/EP requirements and stress the importance of these features in new systems; develop concepts and architectures for acquiring advanced satellite communications service and performing test and evaluation of acquired capabilities. Regarding acquisition strategy, work will continue under existing contract vehicles.

FY1997 Accomplishments:

- Analyzed and documented results of NCS Advanced Communications Technology Satellite (ACTS) High Data Rate Experiments. ($59K) (1st Qtr - 4th Qtr)
- Performed experimentation of NS/EP NII requirements and summarized results. Emphasis of experimentation will be targeted toward evolving Mobile Satellite Systems and influencing their design to include NS/EP desired features. ($225K) (1st Qtr - 4th Qtr)
- Performed analysis of inventory and evaluated industry activities for the potential of meeting NS/EP requirements. ($144K) (1st Qtr - 4th Qtr) $.428M Total

FY1998 Plans:

- Support development of NS/EP capabilities (e.g., priority, security) on developing mobile satellite systems. ($150K) (1st Qtr - 4th Qtr)
- Perform testing and experimentation of NS/EP capabilities on existing and developing mobile satellite systems. ($100K) (1st Qtr - 4th Qtr)
- Conduct experiments utilizing emerging satellite systems to demonstrate the interoperability with other wireless systems and capabilities. ($125K) (1st Qtr - 4th Qtr)
- Continue project planning and research, testing, evaluation, recommendations, and implementation of new technologies. ($50K) (1st Qtr - 4th Qtr) $.425M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Enhanced Satellite Capability/N092		.428	.425	.420	.420	.430	.435	.440	Cont.	Cont.

FY1999 Plans:

- o Validate the ability of operational and developing mobile satellite systems to support NS/EP users. ($100K) (1st Qtr - 4th Qtr)
- o Demonstrate and verify the interoperability between wireless systems, including satellite, cellular, and PCS technologies. ($220K) (1st Qtr - 4th Qtr)
- o Continue implementation of NS/EP functional requirements in developing and planning mobile satellite systems. ($100K) (1st Qtr - 4th Qtr) $.420M Total

B. Program Change Summary

	FY1997	FY1998	FY1999
Previous President's Budget (FY 1998)	.428	.519	.421
Appropriated Value	.479	.519	
Adjustments to Appropriated Value	-.051	-.094	
Adjustments to Budget Year Since FY 98 President's Budget			-.001
Current President's Budget (FY 1999)	.428	.425	.420

Change Summary Explanation

Funding: FY97 change due to below threshold reprogramming.
FY98 change due to Congressional adjustment to Defense-wide Investment appropriation.
FY99 change due to revised fiscal guidance.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Enhanced Satellite Capability (ESC)/N092		.428	.425	.420	.420	.430	.435	.440	Cont.	Cont.

C. Other Program Funding Summary: N/A

D. Schedule Profile

FY97 - 3rd quarter: Analysis of operational mobile satellite systems and their relationship to the NS/EP community.
FY98 - 3rd quarter: Analysis of developing satellite systems and operational mobile satellite systems applicable to NS/EP users.
FY99 - 3rd quarter: Analysis of operational mobile satellite systems and their relationship to the NS/EP community.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/0303127K/Enhanced Satellite Capability (N092)

A. Project Cost Breakdown ($Millions)

Project Cost Categories	FY1997	FY1998	FY1999
Engineering & Technical Service	.428	.425	.420
Total	.428	.425	.420

B. Budget Acquisition History and Planning Information

Performing Organizations

	Budget FY1997	Budget FY1998	Budget FY1999	Total Program
Support & Management Organization	.113	.110	.120	Cont.
Test & Evaluation Organization	.315	.315	.300	Cont.
Total Project	.428	.425	.420	

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Interoperability/N088		1.558	1.706	1.723	1.689	2.427	2.483	2.557	Cont.	Cont.

A. Mission Description & Budget Item Justification:

This project analyzes new telecommunications technologies and their effects on interoperability of government communications and conducts related technical evaluations and standards development. Supports the Federal Telecommunications Standards Program. Ensures interoperability among emerging government communication systems, including information systems, by providing the required analyses to the NCS member organizations and other government agencies through the development of initial specification and correlation of standards for specific types of communication and information systems; the design of initial automated methods for application of standards to systems; the refinement and evaluation of program objectives in evolving technology environment. Regarding acquisition strategy, new reimbursable orders will be used.

FY1997 Accomplishments:

- O Developed additional and updated techniques for reliable and secure NS/EP communications in wide-band and wireless networks. ($652K) (1st Qtr - 4th Qtr)
- O Developed additional and updated methods and proposed standards for flow controlling asynchronous transfer mode congestion to help ensure reliable NS/EP communications. ($441K) (1st Qtr - 4th Qtr)
- O Developed analyses, methods, and standards for assessing quality of multi-media NS/EP communications. ($465K) (1st Qtr - 4th Qtr) $1.558M Total

FY1998 Plans:

- 0 Continue development of network management standards for congestion control in NS/EP services on high speed networks. ($450K) (1st Qtr - 4th Qtr)
- O Develop analyses and contributions to standards in support of NS/EP services priority at intelligent network trigger detection points. ($459K) (1st Qtr - 4th Qtr)
- O Conduct assessment of emerging technology and NS/EP applications. ($350K) (1st Qtr - 4th Qtr)
- O Continue development of reliable and secure techniques for wireless networks and services. ($447K) (1st Qtr - 4th Qtr) $1.706M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Interoperability/N088		1.558	1.706	1.723	1.689	2.427	2.483	2.557	Cont.	Cont.

FY1999 Plans:

- Continue to resolve impediments to interoperability of systems supporting government communications. ($450K) (1st Qtr - 4th Qtr)
- Continue to analyze network management and congestion control of emerging high-speed digital networks to identify and solve NS/EP communication issues. ($400K) (1st Qtr - 4th Qtr)
- Continue to assess emerging technology and NS/EP applications. ($399K) (1st Qtr - 4th Qtr)
- Develop analyses and contributions in support of the development of video teleconferencing and multi-media standards ($474K) (1st Qtr - 4th Qtr) $1.723M Total

B. Program Change Summary

	FY1997	FY1998	FY1999
Previous President's Budget (FY 1998)	1.558	1.759	1.849
Appropriated Value	1.507	1.759	
Adjustments to Appropriated Value	.051	-.053	
Adjustments to Budget Year Since FY 98 President's Budget			-.126
Current President's Budget (FY 1999)	1.558	1.706	1.723

Change Summary Explanation

Funding: FY97 change due to below threshold reprogramming.
FY98 change due to Congressional adjustments to Defense-wide Investment appropriation.
FY99 change due to revised fiscal guidance.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Interoperability/N088		1.558	1.706	1.723	1.689	2.427	2.483	2.557	Cont.	Cont.

C. Other Program Funding Summary:

	FY1997	FY1998	FY1999
O&M	3.092	3.677	3.884

D. Schedule Profile

FY97 - 2nd quarter: Receive report from National Institute of Standards and Technology on rapid (< 1 second) restoration of multi-megabit switched digital circuits.
FY98 - 4th quarter: Receive reports on analyses and contributions on NS/EP applications to multi-media standards.
FY99 - 4th quarter: Receive reports and assessments of emerging technology for NS/EP applications.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/0303127K/Interoperability (N088)

A. Project Cost Breakdown ($Millions)

Project Cost Categories	FY1997	FY1998	FY1999
Engineering & Technical Service	1.558	1.706	1.723
Total Project	1.558	1.706	1.723

B. Budget Acquisition History and Planning Information

Performing Organizations

	Budget FY1997	Budget FY1998	Budget FY1999	Total Program
Test & Evaluation Organization	1.209	1.365	1.364	Cont.
Product Development Organization	.349	.341	.359	Cont.
Total Project	1.558	1.706	1.723	Cont.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Information Assurance/N094		.503	.521	.525	.525	.530	.540	.550	Cont.	Cont.

A. Mission Description & Budget Item Justification:

This project was initiated to mitigate the hacker threat posed to NS/EP telecommunications carried via the Public Switched Network (PSN). The research gained from this project will be used to develop a consistent framework of guidelines that will be useful to government and industry in assuring that critical software supporting and/or controlling telecommunications switches can be trusted to perform as required in support of the PSN. Regarding acquisition strategy, new reimbursable orders will be used.

FY1997 Accomplishments:

- Developed additional tools to identify and eliminate security vulnerabilities in large computer programs such as those used in communications systems. Updated previously developed tools for application to emerging computer systems. ($301K) (1st Qtr - 4th Qtr)
- Evaluated additional security tools and techniques relevant to communication systems and provided updated guidelines. ($202K) (1st Qtr - 4th Qtr) $.503M Total

FY1998 Plans:

- Research and evaluate the application of existing and emerging software packages and other tools that enhance security in communications and information systems that support NS/EP. ($300K) (1st Qtr - 4th Qtr)
- Develop additional tools and procedural guidelines for NS/EP network security. ($221K) (1st Qtr - 4th Qtr) $.521M Total

FY1999 Plans:

- Continue researching and evaluating software tools for enhancing security in NS/EP telecommunications and information systems. ($300K) (1st Qtr - 4th Qtr)
- Continue developing tools and guidelines for protecting NS/EP systems as new threats and vulnerabilities emerge. ($225K) (1st Qtr - 4th Qtr) $.525M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Information Assurance/N094		.503	.521	.525	.525	.530	.540	.550	Cont.	Cont.

B. Program Change Summary

	FY1997	FY1998	FY1999
Previous President's Budget (FY 1998)	.503	.521	.525
Appropriated Value	.503	.521	
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY 98 President's Budget			
Current Budget Submit/President's Budget (FY 1999)	.503	.521	.525

Change Summary Explanation
Funding: N/A

C. Other Program Funding Summary

	FY1997	FY1998	FY1999
O&M	2.494	2.673	3.314

D. Schedule Profile

FY97 - 4th quarter: Evaluations of security features in switches performed by the Telecommunications Security Analysis Center.
FY98 - 4th quarter: Evaluations of emerging software tools for intrusion monitoring and detection in large computer and switching systems.
FY99 - 4th quarter: Software tools and procedures for enhancing NS/EP network security.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/0303127K/Information Assurance (N094)

A. Project Cost Breakdown ($Millions)

Project Cost Categories	FY1997	FY1998	FY1999
Engineering & Technical Service	.503	.521	.525

B. Budget Acquisition History and Planning Information: N/A

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Advanced Intelligent Network/N091		1.115	1.298	1.300	1.240	1.280	1.285	1.290	Cont.	Cont.

A. Mission Description & Budget Item Justification:

This project is required to employ newly developed processing capabilities to tailor the extensive telecommunications resources of the existing Public Switched Network (PSN), which includes the Local Exchange Carrier (LEC) and Inter Exchange Carrier (IEC) Networks, thus enhancing connectivity and survivability of services for essential government users during periods of emergency. Advanced Intelligent Network (AIN) is an evolving PSN capability consisting of signaling systems, switches, computer processing, databases, and transmission media. This research will result in the utilization of these components, in a customized set of network services that can be flexibly, rapidly, and cost effectively configured by customers upon demand. Regarding acquisition strategy, work will continue under current contract vehicles.

FY1997 Accomplishments:

- Researched and developed AIN candidate configurations of potential voice and data AIN services in support of NS/EP emerging requirements and those necessary to support emergency operations on the National Information Infrastructure (NII). ($225K) (1st Qtr - 4th Qtr)
- Planned for and demonstrated proof of concept strategies for offering AIN services and demonstrated interoperability across the Public Switched Network (PSN), across multiple service providers, and with other technologies such as ISDN, ATM, and PCS. ($335K) (1st Qtr - 4th Qtr)
- Assessed AIN survivability, reliability, interoperability, and security concerns for NS/EP voice and data applications and influenced industry to act on NS/EP concerns. ($275K) (1st Qtr - 4th Qtr)
- Continued initiatives to plan demonstrations that remain current with planned industry capabilities and issues, and influence the design of AIN services to be responsive to the needs of the NS/EP community. ($280K) (1st Qtr - 4th Qtr) $1.115M Total

FY1998 Plans:

- Identify new intelligent network capability and set 2 and 3 standard applications for NS/EP. ($218K) (1st Qtr - 4th Qtr)
- Conduct proof of concept demonstration of new services as they apply to Government Emergency Telecommunications Service (GETS). ($645K) (1st Qtr - 4th Qtr)

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Advanced Intelligent Network/N091		1.115	1.298	1.300	1.240	1.280	1.285	1.290	Cont.	Cont.

- Assess AIN integration opportunities with Defense Information System Network (DISN). ($435K) (1st Qtr - 4th Qtr) $1.298M Total

FY1999 Plans:

- Conduct AIN network interoperability testing across multiple carriers. ($640K) (1st Qtr - 4th Qtr)
- Assess AIN third party implementations for NS/EP. ($205K) (1st Qtr - 4th Qtr)
- Determine AIN applications for GETS Network Management. ($455K) (1st Qtr - 4th Qtr) $1.300M Total

B. Program Change Summary

	FY1997	FY1998	FY1999
Previous President's Budget (FY 1998)	1.115	1.298	1.280
Appropriated Value	1.421	1.298	
Adjustments to Appropriated Value	-.306		
Adjustments to Budget Year Since FY 98 President's Budget			.020
Current President's Budget (FY 1999)	1.115	1.298	1.300

Change Summary Explanation
Funding: FY97 adjustment due to below threshold reprogramming.
FY99 change due to revised fiscal guidance.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Advanced Intelligent Network/N091		1.115	1.298	1.300	1.240	1.280	1.285	1.290	Cont.	Cont.

C. Other Program Funding Summary: N/A

D. Schedule Profile

FY97 - 2nd quarter: Develop AIN Open Network Architecture and Demonstrations.
FY98 - 4th quarter: AIN Integration with DISN.
FY99 - 4th quarter: AIN Interoperability with GETS demonstration.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/0303127K/Advanced Intelligent Network (N091)

A. Project Cost Breakdown ($Millions)

Project Cost Categories	FY1997	FY1998	FY1999
Engineering & Technical Service	1.115	1.298	1.300
Total	1.115	1.298	1.300

B. Budget Acquisition History and Planning Information

Performing Organizations

	Budget FY1997	Budget FY1998	Budget FY1999	Total Program
Support & Management Organization	.446	.449	.460	Cont.
Product Development Organization	.669	.849	.840	Cont.
Total Project	1.115	1.298	1.300	

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NS/EP Telecommunications Integration Support/N095		.204	.455	.460	.470	.470	.475	.475	Cont.	Cont.

A. Mission Description & Budget Item Justification:

This project will assess the readiness and capabilities of existing and planned NS/EP telecommunications programs, initiatives, services, and emerging technologies to meet national requirements. It will provide essential information for decision-making and assessment of acquisition risks and will develop test and exercise programs and procedures for evaluation of the capability of the nation's telecommunications resources to meet national security or emergency preparedness telecommunications requirements.

FY1997 Accomplishments:

- o Evaluated exercises and training events to determine capabilities needed to respond to NS/EP emergencies. ($204K) (1st Qtr - 4th Qtr) $.204M Total

FY1998 Plans:

- o Conduct and report on test and evaluation of readiness and capabilities of National Communication Systems (NCS) programs, plans, and procedures in accordance with NS/EP functional requirements. ($151K) (1st Qtr - 4th Qtr)
- o Provide test and evaluation as required for NCS National Level Program (NLP), primary asset, and management system support. ($152K) (1st Qtr - 4th Qtr)
- o Assess NS/EP telecommunications required features and their possible expansion for NS/EP telecommunications application. ($152K) (1st Qtr - 4th Qtr) $.455M Total

FY1999 Plans:

- o Assess emerging technology, existing plans to transition, and the applicability of industry services and assets for NS/EP telecommunications demonstrations. ($156K) (1st Qtr - 4th Qtr)
- o Assess the utility of NS/EP communications through associated technology demonstrations. ($157K) (1st Qtr - 4th Qtr)
- o Provide test and evaluation assessments in accordance with the NS/EP architecture and NCS strategic plan on programs, initiatives, products, and services. ($147K) (1st Qtr - 4th Qtr) $.460M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/P.E.0303127K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NS/EP Telecommunications Integration Support/N095		.204	.455	.460	.470	.470	.475	.475	Cont.	Cont.

B. Program Change Summary

	FY1997	FY1998	FY1999
Previous President's Budget (FY 1998)	.204	.455	.470
Appropriated Value	.204	.455	
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY 98 President's Budget			-.010
Current Budget Submit/President's Budget (FY 1999)	.204	.455	.460

Change Summary Explanation: FY99 change due to revised fiscal guidance.

C. Other Program Funding Summary: N/A

D. Schedule Profile

FY98 Contract Award - 1 October 1998.
FY99 Contract Award - 1 October 1999.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Support of the National Communications System (NCS)/0303127K/NS/EP Telecomm Integration Support/N095

A. Project Cost Breakdown ($Millions)

Project Cost Categories	FY1997	FY1998	FY1999
Engineering & Technical Service	.204	.455	.460
Total	.204	.455	.460

B. Budget Acquisition History and Planning Information

Performing Organizations

	Budget FY1997	Budget FY1998	Budget FY1999	Total Program
Support & Management Organization	.050	.091	.094	Cont.
Product Development Organization	.154	.364	.366	Cont.
Total Project	.204	.455	.460	

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RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Message System/PE 0303129K				
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project H80, Defense Message System (DMS)		1.353	0	0	0	0	0	0	0	1.353

A. Mission Description & Budget Item Justification: The purpose of this project is to provide system engineering to ensure that Joint Staff and OSD (C3I) validated messaging requirements are satisfied through the use of a COTS-based, multi-level secure messaging and directory service. The DMS provides the defense community with a more interoperable, cost effective messaging/directory service than that which is in place today. Current support is focused on developing secure messaging, directory, and management services through requirements definition and refinement; target component Developmental, Initial and Final Operational Test and Evaluation (DT&E, IOT&E and FOT&E); developing transitional interoperability requirements and components/services; technology insertion and service demonstrations; and influencing industry to include DMS features as part of their standard product offerings. This program element is under budget activity 07 because it supports operational systems development.

(U) FY 1997 Accomplishments:

o DMS Management Workstation (MWS) Prototype ($251K) (3rd - 4th Qtr)

o Perform system lifecycle/evolution engineering to account for growth, policy and requirements changes, MISSI and commercial product changes. ($250K) (1st - 4th Qtr)

o Develop and promote DOD/DMS requirements and positions on data communications protocol issues via military and civilian, national and international standards fora. ($200K) (1st - 4th Qtr)

o Perform engineering, specification development, and deployment assistance to support LRD, IOC, and post IOC for sensitive but unclassified messaging, directory, security, and service management capabilities across strategic as well as tactical environments, and extending beyond DMS to include EC/EDI, GCCS/GCSS, DTS, and others. ($652K) (1st - 4th Qtr)

$1.353M Total

(U) FY 1998 Plans: This project has transitioned to O&M appropriation.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Defense Message System/PE 0303129K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Project H80 Defense Message System (DMS)		1.353	0	0	0	0	0	0	0	1.353

B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget (FY 1998)	1.353	0	0
Appropriated Value	2.532		
Adjustments to Appropriated Value	-1.179		
Adjustments to Budget Year Since FY 1998 President's Budget			
Current Budget Submit/President's Budget (FY 1999)	1.353		

Change Summary Explanation:

Funding: FY98 and FY99: Project has transitioned to O&M appropriation.

C. Other Program Funding Summary

	FY97	FY98	FY99
O&M	33.791	34.110	39.930
PROCUREMENT	40.322	43.485	43.372

D. Schedule Profile

FY 1997 Engineering Milestones: Finalized Tactical Standardized Prototype (4 Qtr)

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Defense Message System/PE 0303129K

A. Project Cost Breakdown

	FY97	FY98	FY99
Project Cost Categories ($Millions)			
a. Engineering and Technical Services	1.353	0	0
Total	1.353	0	0

B. Budget Acquisition History and Planning Information

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Budget FY97	Budget FY98	Budget FY99	Budget To Complete	Total Program
Product Development Organizations :									
Other Contracts					.251	0	0	0	.251
Support and Management Organizations:									
MITRE	Procurement Work Directive (PWD)				1.102	0	0	0	1.102
Total					1.353	0	0	0	1.353

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RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/0303131K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total Program Element (PE) Cost		2.208	2.242	3.061	3.237	3.437	3.490	3.597	Contg	Contg
Strategic C3 Support/T70		1.980	1.988	2.029	2.102	2.190	2.223	2.307	Contg	Contg
Contingency Planning for the President/T71		.228	.254	0	0	0	0	0	0	.491
Special Projects/T64		0	0	1.032*	1.135	1.247	1.267	1.290	Contg	Contg

A. Mission Description and Budget Item Justification:

This program focuses on ensuring the implementation of national policy requiring Nuclear Command, Control and Communications (NC3) systems; it supports positive control of nuclear forces, and connectivity between the National Command Authority (NCA) and strategic and other appropriate forces to assure adequate command and control is maintained throughout all phases of conflict and instability. This support also provides informed decision-making linkage between the NCA and the Commanders-in-Chief (CINC) of the Unified and Specified Commands. DISA performs this task as Nuclear C3 (NC3) Systems Engineer. It specifically ensures a balanced, integrated capability is maintained. This project provides direct long range and specialized support to OSD(C3I) and the Joint Staff (JS) for determining which programs should be supported and/or canceled, as well as supports fail safe and risk reduction. This program element is under Budget Activity 07 because it involves efforts supporting operational systems development.

* This project is not a new start. This project was realigned from PE 0302019K, Defense Information Infrastucture Engineering and Integration.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/0303131K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Strategic C3 Support/T70		1.980	1.988	2.029	2.102	2.190	2.223	2.307	Contg	Contg

A. Mission Description & Budget Item Justification:

This project has four elements: strategic planning, operational assessments, communications plans, and engineering. Together, these elements perform all of the functions of the NC3 systems engineer and all of the NCA and Nuclear C3 support for OSD(C3I). The first element is Strategic Planning which is done for OSD(C3I) and the Joint Staff. These are the long range plans and vulnerability assessments done to ensure NC3 is always adequate under all conditions of stress or war. It evaluates the operational capability for the Nuclear Command and Control System (NCCS), i.e., strengths and weaknesses and determines the best investment strategy to evolve the current NCCS to achieve the desired capability. Threats--from terrorist activities--to regional--to global are considered. Fiscal constraints and other top level guidance are also significant factors influencing these plans. The second element is Operational Assessment of the fielded C3 systems and weapons platforms. This assessment is the sole means for positive verification of the communications plans, procedures, operations orders, training, equipment and system configuration from end-to-end. It includes both strategic and theater-to-national level C3 interfaces into the NC3 systems. The tests are performed in an operational setting with Joint Staff, CINC and nuclear forces worldwide. The third element of this project is to maximize the operational readiness of the National Military Command System (NMCS) by developing communications plans, procedures, operations orders and Battle Staff certification, and keeping these plans and procedures accurate as policy and forces change. Under this element, Battle Staff proficiency is verified. The fourth element of this project provides engineering guidance and participation in all NC3 system life cycle systems engineering related functions. It includes mission and functional technical requirements definition; alternative designs and solutions; program policy and guidance; subsystem and network integration; modeling; test and evaluation; development, deployment, installation and problem isolation. This element resolves design, engineering, performance and interoperabiy issues for critical strategic systems.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/0303131K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Strategic C3 Support/T70		1.980	1.988	2.029	2.102	2.190	2.223	2.307	Contg	Contg

(U) FY 1997 Accomplishments:
- o Continued NC3 Operational Assessments/Positive Command and Control (1st Qtr - 4th Qtr; $1,164K).
- o Continued selected communications plans updating and certifications (1st Qtr - 4th Qtr; $320K).
- o Completed NC3 communications requirement for Proliferation (1st Qtr - 4th Qtr; $414K).
- o Validated new architecture to implement Commercial-Off-The-Shelf (COTS) equipment into NC3 (1st Qtr - 4th Qtr; $82K).

$1.980M Total

(U) FY 1998 Plans:
- o Continue NC3 Operational Assessments/Positive Command and Control (1st Qtr - 4th Qtr; $1,073K).
- o Continue selected communications plans updating and certifications (1st Qtr - 4th Qtr; $340K).
- o Complete NC3 communication requirement for Proliferation (1st Qtr - 4th Qtr; $447K).
- o Validate new architecture to implement COTS equipment into NC3 (1st Qtr - 4th Qtr; $128K).

$1.988M Total

(U) FY 1999 Plans:
- o Continue NC3 Operational Assessments/Positive Command and Control (1st Qtr - 4th Qtr; $1,005K).
- o Continue selected communications plans updating and certifications (1st Qtr - 4th Qtr; $545K).
- o Complete NC3 communication requirement for Proliferation (1st Qtr - 4th Qtr; $349K).
- o Validate new architecture to implement COTS equipment into NC3 (1st Qtr - 4th Qtr; $130K).

$2.029M Total

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/0303131K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Strategic C3 Support/T70		1.980	1.988	2.029	2.102	2.190	2.223	2.307	Contg	Contg

Acquistion strategy: MITRE Corporation, McLean, VA; Electrospace Systems, Inc., Arlington, VA; Sciences Applications International Corporation (SAIC), McLean, VA; Naval Space and Warfare Systems Command (SPAWAR), Washington, DC.

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	1.882	2.127	2.179
Appropriated Value	2.075	2.127	
Adjustments to Appropriated Value	-.095	-.139	
Adjustments to Budget Years Since FY98 President's Budget			-.150
Current Budget Submit/President's Budget (FY99)	1.980	1.988	2.029

Change Summary Explanation:

FY97 decrease due to below threshold reprogramming.

FY98 decrease due to Congressional adjustment to Defense-wide investment appropriation.

FY99 decrease due to revised inflation rates.

C. Other Program Funding Summary:

	FY97	FY98	FY99
Operation and Maintenance:	1.065	.928	.808

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/0303131K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Strategic C3 Support/T70		1.980	1.988	2.029	2.102	2.190	2.223	2.307	Contg	Contg

D. Schedule Profile:

Events cited below occur in each fiscal year (1997-1999).

1st Qtr - Strategic Mobile Command Center Operation Order completed for Joint Staff (JS).
1st Qtr - Strategic Communications Assessment (Polo Hat) completed for JS.
1st Qtr - JS/CINC Staff Assistance Exercise (CINCSPACE, CINCSTRAT, National Airborne Operation Center).
1st Qtr - OSD(C3I) "NC3 Review" Report.
1st Qtr - Non-Strategic Communications Exercise completed for JS.
1st Qtr - Final NC3 System Description completed for JS.
2nd Qtr - NC3 Systems Engineer Annual Report to OSD(C3I).
2nd Qtr - JS/CINC Staff Assistance Exercise (CINCPAC).
2nd Qtr - Strategic Communications Assessment (Polo Hat) completed for JS.
2nd Qtr - Non-Strategic Communications Evaluation CINCEUR.
3rd Qtr - Complete Fiber Communications System (FCS).
3rd Qtr - Strategic Communications Assessment (Polo Hat) completed for JS.
3rd Qtr - Emergency Communications Procedures CJCS Emergency Action Procedures (EAP) Vol 7 completed for JS.
4th Qtr - Complete Early Pentagon Connectivity Modernization.
4th Qtr - NMCS/DOD Emergency Communications Plan completed for JS.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/ 0303131K/Strategic C3 Support (T70)

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY97	FY98	FY99
a. Systems Engineering	1.980	1.988	2.029
TOTAL	1.980	1.988	2.029

B. Budget Acquisition History and Planning Information:
Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities	SS/C CPAF CPFF MIPR WR					1.980	1.988	2.029	Contg	Contg
TOTAL PROJECT						1.980	1.988	2.029		

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/ 0303131K

COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Contingency Planning for the President (CPP)/T71		.228	.254	0	0	0	0	0	0	.491

A. Mission Description & Budget Item Justification:

All aspects of this project are classified and require special access. Therefore, information on this project is not contained in this document but can be obtained upon request. Funding for this project was eliminated in FY99 due to revised priorities.

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)	.228	.254	.271
Appropriated Value	.236	.254	
Adjustments to Appropriated Value	-.008		
Adjustments to Budget Year Since FY98 President's Budget			-.271
Current Budget Submit/President's Budget (FY99)	.228	.254	0

Change Summary Explanation:

FY97 change due to below threshold reprogramming.

FY99 decrease due to revised priorities.

C. Other Program Funding Summary:

Information can be provided upon request.

D. Schedule Profile:

N/A

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/ 0303131K/Contingency Planning for the President (T71)

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY97	FY98	FY99
a. Systems Engineering	.228	.254	0
TOTAL	.228	.254	0

B. Budget Acquisition History and Planning Information:

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Miscellaneous						.228	.254	0	0	.491
Government Furnished Property: N/A										
TOTAL PROJECT						.228	.254	0		

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)									DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/0303131K					
COST (in millions)		FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Special Projects/T64				1.032*	1.135	1.247	1.267	1.290	Contg	Contg

A. Mission Description & Budget Item Justification:

All aspects of this project are classified and require special access. Therefore, information on this project is not contained in this document but can be obtained upon request.

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)			0*
Appropriated Value			
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY98 President's Budget			
Current Budget Submit/President's Budget (FY99)			1.032

Change Summary Explanation:

FY99 adjustment due to realignment of project from PE 0302019K.

C. Other Program Funding Summary:

N/A

D. Schedule Profile:

Information will be made available upon request.

* This is not a new start. This project is being realigned from PE 0302019K, Defense Information Infrastructure Engineering and Integration, project T64.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Minimum Essential Emergency Communications Network (MEECN)/0303131K/Special Projects/T64

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY97	FY98	FY99
a. Systems Engineering			1.032*
TOTAL			1.032

B. Budget Acquisition History and Planning Information

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
MITRE	SS/CPFF							1.032	Contg	Contg
Government Furnished Property: N/A										
TOTAL PROJECT								1.032		

* This is not a new start. This project was realigned from PE 0302019K, Defense Information Infrastructure Engineering and Integration.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07				**R-1 ITEM NOMENCLATURE** C4I for the Warrior/0303149K					
COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total Program Element (PE) Cost				3.675	3.919	4.177	4.239	4.318	Contg	Contg
Center for Standards/T20				3.300	3.525	3.763	3.818	3.880	Contg	Contg
NMCS Subsystem Engineering/T50				.375	.394	.414	.421	.438	Contg	Contg

A. Mission Description and Budget Item Justification:

This program element is the Chairman of the Joint Chiefs of Staff (CJCS) initiative promoting joint and coalition C4I interoperability per DOD Directive 4630.5, DOD Instruction 4630.8. CJCS Instruction 6212.12 directs the Joint Staff J-6, to continuously identify, prioritize, and quickly solve Joint C4I interoperability problems. C4IFTW's three overlapping phases lead to global interoperability for US military forces deployed anywhere, on any mission, at any time, with maximum flexibility in force composition. C4I for the Warrior provides focus and visibility into resolving C4I interoperability issues. As a result, this program element is under Budget Activitity 07 because it involves efforts supporting operational systems development.

* Projects identified under this program element are not new starts. They are being realigned from other program elements which are identified under the individual project descriptions.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					R-1 ITEM NOMENCLATURE C4I for the Warrior/0303149K					
COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Center for Standards/T20				3.300	3.525	3.763	3.818	3.880	Contg	Contg

A. Mission Description & Budget Item Justification:

The Center serves as DOD Executive Agent for centralized management of Information Technology (IT) standards. The primary goal is to guide development of standards within DoD and encourage industry adoption of standards supporting DOD requirements. The Center for Standards (CFS) supports the Warfighter by providing information technology standards products and services which improve systems interoperability and information quality for the warfighter. CFS accomplishes this by orchestrating the development, adoption, certification and implementaton of information processing, transfer, content, and format standards within DoD. The Center will also select candidate technologies for advanced technology demonstrations, and develop the roadmap and business case analyses for transitioning technologies into leading edge services.

(U) FY 1999 Plans:

- o Develop ATM Network-to-Network Interface Standards Profile (1st Qtr - 4th Qtr; $320K).
- o Development of SHF, UHF, and EHF SATCOM Standards (1st Qtr - 4th Qtr; $538K).
- o Technical support of SATCOM Strategic Tactical NATO Agreement(STANAG) development (1st Qtr - 4th Qtr; $550K).
- o Technical support to NATO Tactical Communications (TACOMS) 2000 (1st Qtr - 4th Qtr; $250K).
- o Technical support to Program Manager (PM), Defense Message Systems (DMS) (1st Qtr - 4th Qtr; $200K).
- o Technical support to PM-Electronic Commerce (1st Qtr - 4th Qtr; $150K).
- o Development of standards for Digitized Battlefield (1st Qtr - 4th Qtr; $575K).
- o DOD technical requirements for Internet Engineering Task Force (1st Qtr - 4th Qtr; $117K).
- o Combined Joint Chiefs of Staff Manuals Development (1st-4th Qtr; 600K).

$3.300M Total

*This project is not a new start. This project was realigned from PE 0208045K, C3 Interoperability, project T20.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** C4I for the Warrior/0303149K					
COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Center for Standards/T20				3.300	3.525	3.763	3.818	3.880	Contg	Contg

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)			0*
Appropriated Value			
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY98 President's Budget			+3.300
Current Budget Submit/President's Budget (FY99)			3.300

Change Summary Explanation:

FY99 adjustment due to realignment of project from PE 0208045K.

C. Other Program Funding Summary:

	FY97	FY98	FY99	Total Cost
O&M			9.887	Contg

D. Schedule Profile:

FY 1999: All Qtrs: Develop VTC Standards Profile for LANs and Internet and Mobile Cellular Radios
1st Qtr: Internet Draft on Quality of Service additions to IP layer protocols
2nd Qtr: Internet RFC on Mobile AdHoc Networking
3rd Qtr: Advanced EHF SATCOM Standard

*This project is not a new start. This project was realigned from PE 0208045K, C3 Interoperability, project T20.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** C4I for the Warrior 0303149K/Center for Standards/T20

A. Project Cost Breakdown: ($Millions)

	FY97	FY98	FY99
Project Cost Categories			
a. Systems Engineering			3.300*
TOTAL			3.300

B. Budget Acquisition History and Planning Information:

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
JSE	C/CPFF	02/97						3.300	Contg	Contg
	C/CPAF									
All Other Contracts									Contg	Contg
	SUBTOTAL CONTRACTS							3.300		
In House Engineering & Technical Support: N/A										
TOTAL PROJECT								3.300		

* This is not a new start. This project was realigned from PE 0208045K, C3 Interoperability, project T20.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** C4I for the Warrior/0303149K

COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Subsystem Engineering/T50				.375	.394	.414	.421	.438	Contg	Contg

A. Mission Description & Budget Item Justification:

To accommodate rapid changes in requirements and increasing budget constraints, new approaches to reduce development and integration time, as well as costs for command and control systems must be sought. This project provides system engineering support to C4I information systems by developing near-term prototypes to satisfy CINC/Joint Task Force (JTF) operational requirements. Through this prototyping technical approach, operational requirements are assessed, system performance is measured, system interoperability is demonstrated and standard DISA products are premiered in an operational setting (Defense Message System (DMS), Global Command and Control System (GCCS), Global Combat Support System (GCSS), and Defense Information Infrastructure (DII)). The incorporation of prototypes into Joint Warrior Interoperability Demonstration (JWID) demonstrations and command exercises provides real-time assessment of technological advances and identifies interoperability problems and generates associated solutions. This approach also applies to assessing command center capabilities and the implications of DMS, GCCS, GCSS and DII on future command center requirements.

U) FY 1999 Plans:

- o Continuation of CINC/JTF prototype evolution including software and hardware technologies to enhance two-way communication with warfighter, command and control from the foxhole to the commander (1st Qtr - 4th Qtr; $375K).

  $.375M Total

* This is not a new start. This project was realigned from PE 0302016K, National Military Command System-Wide Support, project T50.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** C4I for the Warrior/0303149K					
COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
NMCS Subsystem Engineering/T50				.375	.394	.414	.421	.438	Contg	Contg

B. Program Change Summary:

	FY97	FY98	FY99
Previous President's Budget (FY98)			0*
Appropriated Value			
Adjustments to Appropriated Value			
Adjustments to Budget Year Since FY98 President's Budget			+.375
Current Budget Submit/President's Budget (FY99)			.375

Change Summary Explanation:
FY99 due to realignment of project from PE 0302016K.

C. Other Program Funding Summary:
Related RDT&E: Program Element #0208045K, C3 Interoperability.

D. Schedule Profile:

FY1999 4th Qtr: CINC/JTF prototype evolution.

* This is not a new start. This project was realigned from PE 0302016K, National Military Command System-Wide Support, project T50.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** C4I for the Warrior/0303149K/NMCS Subsystem Eng/T50

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY97	FY98	FY99 *
a. Systems Engineering			.375
TOTAL			.375

B. Budget Acquisition History and Planning Information:

Support and Management Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Multiple Performing Activities	C/SS CPAF CPFF WR/PO							.375	Contg	Contg

Government Furnished Property: N/A

Total Project								.375		

* This is not a new start. This project was realigned from PE 0302016K, National Military Command System-Wide Support, project T50.

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RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)								DATE: February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07					**R-1 ITEM NOMENCLATURE** Joint Spectrum Center (JSC)/0303153K					
COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Joint Spectrum Center (JS1)				8.839	8.967	9.039	9.581	9.892	Contg	Contg

A. **Mission Description and Budget Item Justification:** The Joint Spectrum Center (JSC) serves as the DoD focal point for electromagnetic (EM) spectrum management matters in support of the Unified Commands, Joint Staff, Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD (C^3I)), Military Departments, and Defense Agencies in planning, acquisition, training, and operations. The JSC reports operationally to Defense Information Systems Agency (DISA). The JSC is the responsible activity for DoD spectrum management and use automation for strategic, theater, and tactical operations. The JSC has the responsibility for architecture and standardization of DoD automated spectrum information and management systems. Specifically, the Center designs, develops, and maintains DoD automated spectrum management systems, evaluation tools, and databases employed by the Unified Commands, Military Departments, and Defense Agencies. The JSC databases are the prime sources of information for DoD use of the EM spectrum. The JSC provides guidance and assistance to Office of Assistant Secretary of Defense (OASD), Joint Staff, DoD activities and Unified Commands to ensure development and acquisition of electromagnetically compatible systems and for the effective deployment of these systems in military operations. This Center is the focal point for spectrum related support, Electromagnetic Environmental Effects (E^3), and EM interference resolution assistance to operational units including deployable support to CINC Joint Task Forces. The JSC mission is integral to other vital activities such as Information Warfare (IW), Command and Control (C2) Protect and other defensive C3 warfare activities as directed by the Joint Staff. This program element is under Budget Activity 07 because it supports operational systems development.

Acquisition Strategy: Engineering support services for the JSC are provided by contract. No in-house government capability exists, nor is it practical to develop one, that can provide the expertise necessary to fulfill the mission and responsibilities of the JSC. The basic period of the current cost plus award fee contract ends 30 September 1998. The contract has provision for option to renew for an additional two years (1 October 1998 through 30 September 1999 and 1 October 1999 through 30 September 2000). Full and open competition will be used for acquisition of follow-on contract(s). At the appropriate time, a request for sources will be synopsized in the Commerce Business Daily (CBD) for the purpose of identifying potential sources for the JSC support requirements.

*This is not a new start. Project was realigned from Air Force PE 0303144F/PE 0303153F,ECAC/JSC, project 649E. In addition, funds were aligned from Navy for this project.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Joint Spectrum Center (JSC)/0303153K

COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Joint Spectrum Center (JS1)				8.839	8.967	9.039	9.581	9.892	Contg	Contg

FY 1999 Plans: ($ in Millions):

- Spectrum Policy and Spectrum Requirements Analysis support to OASD and Joint Staff (1st Qtr - 4th Qtr; $1,853K)
- Continue development of Spectrum XXI (1st Qtr - 4th Qtr; $2,147K)
- Continue development of DoD EMC databases and models and simulations (1st Qtr - 4th Qtr; $2,458K)
- Continue E3 Program Development (1st Qtr - 4th Qtr; $2,381K)
- $8.839M Total

B. **Program Change Summary:**

	FY97	FY98	FY99
Previous President's Budget (FY98)			0*
Appropriated Value			
Adjustments to Appropriated Value			
Adjustments to Budget Years Since FY98 President's Budget			+8.839
Current Budget Submit/President's Budget (FY99)			8.839

Change Summary Explanation:

FY99 adjustment due to realignment of JSC from AF (PE 0303144F/PE0303153F) Project 649E.

C. **Other Program Funding Summary:**

	FY97	FY98	FY99*	Total Cost
O&M			14.130	Contg

*This is not a new start. Project was realigned from Air Force PE 0303144F/PE 0303153F,ECAC/JSC, project 649E. In addition, funds were aligned from Navy for this project.

RDT&E BUDGET ITEM JUSTIFICATION (R-2 Exhibit)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Joint Spectrum Center (JSC)/0303153K

COST (in millions)		FY97	FY98	FY99*	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Joint Spectrum Center (JS1)				8.839	8.967	9.039	9.581	9.892	Contg	Contg

D. Schedule Profile

	FY97	FY98				FY99			
	4	1	2	3	4	1	2	3	4
Decision to Exercise Contract Option	X								
Exercise Contract Option			X						
Decision to Exercise Contract Option					X				
Exercise Contract Option							X		
Commerce Business Daily Notice for engineering support services for JSC									X

*This is not a new start. Project was realigned from Air Force PE 0303144F/PE 0303153F,ECAC/JSC, project 649E. In addition, funds were aligned from Navy for this project.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Joint Spectrum Center (JSC)/0303153K

A. Project Cost Breakdown: ($Millions)

Project Cost Categories	FY 1997	FY 1998	FY 1999
a. Contractor Engineering Support			8.839*
TOTAL			8.839

B. Budget Acquisition History and Planning Information: ($Millions)

Test and Evaluation Organizations

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Prior to FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
IIT Research Institute, Annapolis MD	C/CPAF Allot						6.208	Contg	Contg
All Other Contracts							2.181	Contg	Contg
SUBTOTAL CONTRACTS							8.389	Contg	Contg
In House engineering & Technical Support: N/A									
TOTAL PROJECT							8.389		

*This is not a new start. Project was realigned from Air Force PE 0303144F/PE 0303153F,ECAC/JSC, project 649E. In addition, funds were aligned from Navy for this project.

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide/07	**R-1 ITEM NOMENCLATURE** Joint Spectrum Center (JSC)/0303153K

Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY97	Budget FY98	Budget FY99	Budget to Complete	Total Program
Test and Evaluation Property								
GFP (Hardware & Software)	C/CPAF		1Jul95-30Sep99			.450	Contg	Contg
Subtotal Test and Evaluation						.450		
TOTAL PROJECT						8.839		

*This is not a new start. Project was realigned from Air Force PE 0303144F/PE 0303153F,ECAC/JSC, project 649E. In addition, funds were aligned from Navy for this project.

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DEFENSE SECURITY SERVICE

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Defense Security Service
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
139	0305127V	Foreign Counterintelligence Activities	7	411	406	418	U
		Operational Systems Development		411	406	418	
Total		Defense Security Service		411	406	418	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE September 1997			
APPROPRIATION/BUDGET ACTIVITY Defense Security Service (DSS): RDT&E, Defense-wide/BA 7			R-1 ITEM NOMENCLATURE National Foreign Intelligence Program 0305127V				
COST (in Millions)	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
Small and Miscellaneous Grants Program (No project number)	0.4	0.4	0.4	0.4	0.4	0.5	0.5

A. Mission Description and Budget Item Justification

The RDT&E funds contained in the DSS budget are administered by the Department of Defense Polygraph Institute (DoDPI). These funds provide grants for master's and doctoral degree students and funding to academic and private institution for research in forensic psychophysiology. Additionally, funds provide for external contracts for projects that are incorporated in the Institute's prioritized research plan. This plan was developed at the request of the Security Policy Board. The research program has three Congressionally mandated research areas: (1) evaluate the validity of polygraph techniques, (2) conduct research on polygraph countermeasures, and (3) conduct developmental research to improve polygraph technology. Research falls into four major categories: (1) computerization of polygraph test results, (2) new physiological measures and equipment, (3) new test formats and procedures, and (4) miscellaneous grants to construct a computerized data base that contains studies and statistics on polygraph studies.

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Costs
FY 1998/1999 Biennial Budget - February 1997	0.412	0.419	0.418	1.249
Appropriated Value	0.412	0.419	0.418	1.249
Adjustments to Appropriated Value				
a. Inflation Reduction, FY 1997 Supplemental	(0.001)	0.000	0.000	(0.001)
b. Section 8043: Title III & IV Reduction	0.000	(0.006)	0.000	(0.006)
c. Section 8106: RDT&E Reduction	0.000	(0.005)	0.000	(0.005)
d. Economic Adjustment	0.000	(0.002)	0.000	(0.002)
FY 1999 Defense Budget Review - February 1998	0.411	0.406	0.418	1.235

C. Other Program Funding Summary

The Operation and Maintenance, Defense-wide appropriation is charged for the salaries and support costs for seven polygraph research positions; and beginning in FY 1999 for one instructor focusing on FCI Initiatives and one quality assurance Inspector focusing on FCI polygraph standardization issues.

FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003
0.6	0.6	0.7	0.7	0.7	0.7	0.7

D. Schedule Profile

There are no scheduled acquisition, program, T&E, or contract milestones.

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DEFENSE LOGISTICS AGENCY

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Defense Logistics Agency
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
36	0603712S	Generic Logistics R&D Technology Demonstrations	3	19,220	21,554	17,788	U
48	0603753S	Electronic Commerce Resource Centers	3		46,421		U
58	0603805S	Dual Use Application Programs	3	5,000		6,000	U
		Advanced Technology Development		24,220	67,975	23,788	
116	0605798S	Defense Technology Analysis	6	13,096	8,542	5,010	U
118	0605801S	Defense Technical Information Center	6	43,315	45,413		U
119	0605803S	R&D in Support of DoD Enlistment, Testing	6	1,887	8,016	8,248	U
		RDT&E Management Support		58,298	61,971	13,258	
156	0708011S	Industrial Preparedness	7	6,101	26,013	26,231	U
		Operational Systems Development		6,101	26,013	26,231	
Total		Defense Logistics Agency		88,619	155,959	63,277	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3	Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION

COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
TOTAL PROGRAM ELEMENT	19.220	21.554	17.788	18.210	18.594	19.081	19.604	Cont.	Cont
#1: User-Source Link	4.479	4.646	3.900	3.900	0.000	0.000	0.000	0.000	17.079
#2: Rule-based Decisions	2.912	2.226	2.300	1.900	0.000	0.000	0.000	0.000	9.412
#3: Material Acquisition: Electronics	4.642	4.257	5.000	5.500	6.100	6.300	6.500	Cont.	Cont
#4: Advanced Logistics Support	2.730	2.901	3.800	3.900	1.900	0.000	0.000	Cont	Cont
#5: Advanced Technology Integrator	1.592	1.741	1.860	2.100	2.500	2.600	2.700	Cont.	Cont
#6 Future Logistics R&D Requirements	0.000	0.000	0.000	0.000	7.147	9.181	9.404	Cont	Cont
#7 On Demand Manufacturing/CATT	0.000	5.783	0.928	0.910	0.947	1.000	1.000	Cont	Cont
#8 MetalCasting	1.875	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.875
#9 Military Cargo Methods	0.990	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.990

A. Mission Description & Budget Item Justification: The DoD logistics vision calls for providing flexible, cost effective and prompt materiel support, logistics information and services; achieving the leanest possible infrastructure and the employment of the best commercial and government sources and practices. The DLA Logistics R&D program will develop and demonstrate high risk, high payoff technology that will provide a significantly higher level of support at lower costs, than would be otherwise attainable. The DLA program is a key part of the DARPA/DLA Advanced Logistics Program. Focused Logistics is one of the five basic tenants of Joint Vision 2010. The DLA logistics R&D program contributes directly to achieving JV 2010's vision of logistics "support in hours or days versus weeks." The objective of the Advanced Logistics Program is to provide a collaborative environment which will allow the Operations community (J3) and Logistics planning community (J4), TRANSCOM and DLA to seamlessly interact on operations planning and execution of war time operations. In addition, DLA will use the same system in peace time to significantly reduce Logistics Response Time and reduce the cost of DLA operations while maintaining readiness.

#1 USER-SOURCE LINK: Effort links DoD parts consumers with suppliers, enabling users to decide on price, quality, packaging, quantity, and ordering. Effort will significantly reduce DLA's overhead and inventory costs as more direct vendor deliveries will be attainable.

#2 RULE-BASED DECISIONS: Automates decision processes in buying, cataloging and item management that are strictly rule-based, to increase turnarounds and decreasing labor costs. First thrust concentrates on procurement activities, followed by item management and cataloging functions.

#3 MATERIAL ACQ: ELECTRONICS: Will fund continued enhancement of Generalized Emulation of Microcircuits effort and continue the Advanced Microcircuit Emulation (AME) which started in FY 97 . Program reduces weapons system support costs by providing an alternative to circuit board redesigns and lifetime buys. To date, GEM has delivered 14,000 microcircuits of 75 different types to 31 different weapon systems.

#4 ADVANCED TECHNOLOGY LOGISTICS SUPPORT NETWORK (ATSN): Effort develops a total logistics approach to applying advanced decision supports to center's goals well into the next century. Emphasis on cost-effective resourcing for wartime needs, customer choices, and fast, predictable deliveries.

#5 ADVANCED TECHNOLOGY INTEGRATOR: Will demonstrate prototypes of new mat'l handling & distribution equipment in a DoD depots prior to full scale implementation. Targets are storage, distribution and receiving processes, incorporating automatic identification technologies.

#6 FUTURE LOGISTICS R&D REQUIREMENTS: These funds will accelerate the transition of technology to the DLA, so that dramatic improvements in supply support can be undertaken. The alternative is for the Agency to slowly follow in the footsteps of Commercial supply practices, rather than to be the leader in Logistics efficiency, effectiveness and military readiness.

#7 ON DEMAND MANUFACTURING/COMPUTER AIDED TECHNOLOGY TRANSFER (CATT): This cycle time reduction initiative will establish commercial manufacturing capabilities to acquire parts "on demand". Contracting relationships will be established to obtain small quantities of military unique items of low demand, with significantly lower costs and greatly improved response time.

#8 METALCASTING: Cuts costs and reduces lead times of spare parts, by developing concurrent engineering teams to exploit ability of casting technology to reduce part count, tooling costs, and machining costs. In future years will be transitioned to Manufacturing Technology (PE 0708011S).

#9 MILITARY CARGO METHODS: Congressional add to study private sector transport of containerized munitions and third party logistics.

B. Program Change Summary:

	Cost in Millions		
	FY97	FY98	FY99
President's Budget Submission:	19.357	17.267	17.788
Adjustment to Appropriated Value:	- 0.137	4.287	-----
Current Budget Submission	19.220	21.554	17.788

Change Summary Explanation:

Funding: FY 97 net adjustments reflects $95 thousand internal realignment and $42 thousand rescinded as part of the FY 1997 DoD supplemental. FY98 net adjustment reflects a congressional add, +5Million for CATT and - $713 thousand congressional undistributed reductions.
Schedule: No Significant Changes

Technical: No Significant Changes. FF

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY02	FY03	COST TO COMP	TOTAL
#1: USER-SOURCE LINK	4.479	4.646	3.900	3.900	0.0	0.0	0.0	0.0	16.925

A. Mission Description and Justification:

User-Source Link will dramatically change the current logistical system as it exists today. DLA will offer users choices on sourcing, packaging, quality levels and shipping that were previously decided by our Inventory Control Points. The user will also be able to place the order on a pre-negotiated price schedule established by DLA. This will be accomplished by linking the user of parts with the suppliers. The initial phase will involve linking users to suppliers through a set of query servers. This will eliminate the need for suppliers to continually provide product information updates to the Government. Instead, the query servers will go to the suppliers organic product databases and retrieve the information for the user. The final phase of this effort will involve the use of "Agents." Software agents will travel between suppliers catalogs retrieving the information requested by the user without the use of query servers.

This project is needed to provide the DoD's customers with the information they need to make an informed buying decision. It will enable DLA to significantly reduce its overhead costs which are ultimately passed on to our customers. More direct vendor deliveries will result from this link which will reduce inventories. The use of suppliers part data will reduce the need for establishing NSNs and other cataloging data. Post-acquisition support problems and the resources necessary to solve them will go down as the user can interactively make their specific requirements known.

(U) Program Accomplishments and Plans:

(U) FY 1997:

- Develop data gathering tools and automated supply tools. Access to stock held in commercial inventory has been demonstrated as well as the ability to place credit card orders and military requisition, though the US Link technology.

(U) FY 1998:

- All DLA managed items will be visible and availability to order by DLA customers regardless of whether the stock is held by DLA Depots or in private industry's finished goods inventory.

B. Program Change Summary: Cost in Millions

	FY 97	FY98	FY99
President's Budget Submission:	4.404	4.800	3.900
Adjustment to Appropriated Value:	+.075	-.154	-----
Current Budget Submission:	4.479	4.646	3.900

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#1: USER-SOURCE LINK	4.479	4.646	3.900	3.900	0.000	0.000	0.000	0.000	16.925

C. Other Program Funding Summary:

- No funding dependencies on other programs.
- Related Programs: ARPA's FAST program (PE #62301E); ARPA's Advanced Logistics Program P.E.).

D. Schedule Profile:

US LINK will be test links among of DLA Inventory Control Points and Navy/Army/AF customer sites, and private industry.

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Phase I Add Vendors/DLA Items			X	X	X							
Phase I: Continue Query-server software development		X	X	X	X							
Phase I: DLA beta-test initial demo					X	X	X	X				
Phase I: Army/Navy/AF/USMC beta-test demo							X	X				
Phase II: Agent Development Solicitation & Awd								X				
Phase II: Agent Beta Testing									X	X	X	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3	Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION

COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#2: Automate Rule-based Decisions	2.912	2.226	2.300	1.900	0.000	0.000	0.000	0.000	9.338

A. Mission Description & Budget Item Justification

Over 97% of DLA's procurements involve small purchases. Small purchases are very straightforward and lend themselves to automation. 20% of these actions are currently performed untouched by human hands. Because the remainder are mostly based on sets of rules, further automation could result in as many as 70% of all buys being automated. The second phase of this effort would address rule based decisions in cataloging and item management processes. Significant labor savings will result through the automation of many of these currently manual processes. The research will involve identification of those rule-based decisions that lend themselves toward automation, resolution of overlapping or conflicting rules, software development, demonstration, beta-site testing, feedback analysis and corrective action.

(U) Program Accomplishments and Plans:

(U) FY 1997:

- Demonstrate natural language processing for automation formulation of contracts.
- Develop technology for rapid reconfiguration of decision processes.

B. Program Change Summary:

	Cost in Millions		
	FY 97	FY98	FY99
President's Budget Submission:	2.912	2.300	2.300
Adjustment to Appropriated Value:	------	-.074-	-----
Current Budget Submission :	2.912	2.226	2.300

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#2: Automate Rule-based Decisions	2.912	2.226	2.300	1.900	0.0	0.0	0.0	0.0	9.338

C. Other Program Funding Summary:

- No funding dependencies on other programs.
- Related Programs: ARPA's Intelligent Integration of Information (I-3) program (PE #62301E) (Knowledge Sharing Initiative.

D. Schedule Profile:

Automate a vast array of business processes throughout the buying and cataloging community that involve rule-based decision making. Increase automated procurements from 20%-60%. Cut manual intervention rate on automated buys by 90%. Output will be a significantly reduced DLA overhead rate due to labor savings.

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Conceptual Design of Decision Support Sys.	X	X	X									
Detailed design			X	X	X							
Design review/acceptance					X	X						
Coding						X	X	X	X	X	X	
System Integration and test						X	X	X	X	X	X	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#3: Material Acquisition: Electronics	4.642	4.257	5.000	5.500	6.100	6.300	6.500	Cont.	Cont.

A. Mission Description & Budget Item Justification

Develop a capability to emulate most obsolete digital integrated circuits (ICs) in the federal catalog using a single, flexible manufacturing line. DoD has estimated that $2.9B is spent every five years in redesigning circuit card assemblies. Much of these redesigns are driven by IC obsolescence. The commercial suppliers of ICs typically terminate production lines every 5 years, moving on to the next generation of ICs. Because DoD maintains weapons systems much longer than 5 years, this creates an obsolescence problem that can only be overcome through buying excessive inventories of parts before the production lines close or redesigning the next higher assembly to eliminate the obsolete part. DLA, as the manager of over 80% of the IC supply class, must have a capability to manufacture these devices. This project will develop this capability and expand it to the succeeding generations of obsolete ICs through the Advanced Microcircuit Emulation program.

(U) **Program Achievements and Plans:**

(U) FY 1997:

- Development and demonstration of emulated microcircuits needed for the following systems: F-14; F-15; F-16; F-18; JTIDS; UYK-43; UYK-44; AEGIS; JSTARS, SPACE SHUTTLE; TRIDENT; BSY-2; AWACS; CG-47; DESC(Various Users).
- Developing GEM devices: 66 New Part Types; 17,000 devices.
- Achievements: Field GEM Production Program (next Generation Emulation) begins emulates micro controllers & microprocessors, ASICs, LSI, VLSI, and Analog Devices.

B. Program Change Summary: Cost in Millions

	FY 97	FY98	FY99
President's Budget Submission:	4.759	4.400	5.000
Adjustment to Appropriated Value:	-.117	-.143	----
Current Budget Submission:	4.642	4.257	5.000

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to COMP	TOTAL
#3: Material Acquisition: Electronics	4.642	4.257	5.000	5.500	6.100	6.300	6.500	Cont.	Cont.

C. Other Program Funding Summary: No funding dependencies on other programs. No related programs.

D. Schedule Profile: The Generalized Emulation of Microcircuits (GEM) Program will eliminate the need to redesign in many cases by producing a form, fit, and function "drop-in" replacement for the old microcircuits using current technology. GEM addresses microcircuits built in the 1960's-70's. AME will address 1980's obsolescence.

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
GEM Statement of Work												
GEM Dem/Val solicitation												
GEM Dem/Val award												
Qualify 2K ROM array												
Qualify high voltage array												
Scale BiCMOS process to 1.2 micron												
Attain QML certification												
Advance Microcircuit Emulation (AME) solicitation and Award	X											
Proof of concept of analog, microwave and ASIC emulation		X										
Cost Reduction for ASIC emulations		X	X	X	X	X	X	X	X	X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#4: Advanced Technology Logistics Support Network	2.730	2.901	3.800	3.900	1.900	0.000	0.000	Cont	Cont

A. Mission Description and Budget Item Justification

Advanced Technology Logistics Support Network initiative will reduce DoD inventory requirements by substituting immediate access to commercial sector inventories for stocks held in a DoD warehouses. Its objectives include creating a virtual inventory by tapping into worldwide commercial inventories; providing a full array of leveraged prices; providing a variety of delivery methods; providing graphics and on line help which will allow customers to fully explore an item's specifications, warranty and past performance; and creating a seamless catalog which integrates commercial catalog data with DLA negotiated prices. The program proposal seeks to allow DoD customers to conduct business on the Internet; utilize application scanners to remove the barriers of software language; link databases across government and industry via hyperlink technologies; and finally use hypertext markup language to merge government database information onto the Internet.

The ATSN program has far reaching applicability in allowing DLA and its customers to fully capitalize on the logistics related information technology advancements currently available. The program will bring this advanced technology to both peacetime customer support and mobilization support. These new technologies are critical elements to the achievement of DLA's programmed outyear savings in conjunction with implementation of reengineering initiatives and acquisition reform.

(U) **Program Accomplishments and Plans:**

(U) FY 1997:

- Demonstrate virtual inventory access in a distributed environment using state of the art human computer interface tools.
- Develop servers for rapid supply service and integrate with transportation and sustainment servers.

B. Program Change Summary: Cost in Millions

	FY 97	FY98	FY99
President's Budget Submission:	2.730	3.000	3.800
Adjustment to Appropriated Value:	----	- .099	----
Current Budget Submission:	2.730	2.901	3.800

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#4: Advanced Technology Logistics Support Network	2.730	2.901	3.800	3.900	1.900	0.000	0.000	Cont	Cont

C. Other Program Funding Summary: No funding dependencies on other programs. Related Programs: ARPA's FAST program (PE #62301E); ARPA's Intelligent Integration of Information (I-3) (PE #62301E) program.

D. Schedule Profile: DLA's Defense Personnel Supply Center (DPSC) will manage the ATSN program. Will implement communications network developed under US Link. Objectives include reduction in customer delivery time variances from 50% to 3%, reduced inventories (both retail & wholesale), on-line requisition status, and lower unit prices.

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award	X											
Response process modeling and analysis		X	X	X	X							
Process integration/elimination		X	X	X	X	X	X	X	X	X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#5: ADVANCED TECHNOLOGY INTEGRATOR	1.592	1.741	1.860	2.100	2.500	2.600	2.700	Cont.	Cont.

Advanced Technology Integrator

A. Mission Description & Budget Item Justification:

The DoD has pursued material handling and distribution technologies in the past by identifying promising commercial technologies and installing them in our depots, many times in the absence of quantifiable benefits. This has resulted in identified challenges concerning realistic benefits, system interoperability, and resource/personnel capability. The Advanced Technology Integrator will eliminate these problems by providing a "try before you fly" capability where equipment can be simulated in a live depot environment prior to full-scale implementation. A demonstration center would be created. Tasks would be executed by the center in order to fully evaluate promising technologies or new concepts.

The impact of the Advanced Technology Integrator would be lower depot overhead costs associated with the receiving, storage, and issuing processes.

(U) Program Achievements and Plans:

(U) FY 1997:

- Development of virtual test-bed for depot operations.
- Development and demonstration of freight manifest automation.
- Development of sentinels for in-movement monitoring of materiel.

B. Program Change Summary: Cost in Millions

	FY 97	FY98	FY99
President's Budget Submission:	1.592	1.800	1.860
Adjustment to Appropriated Value:	----	-.059	----
Current Budget Submission:	1. 592	1.741	1.860

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#5: Advanced Technology Integrator	1.592	1.741	1.860	2.100	2.500	2.600	2.700	Cont.	Cont.

C. Other Program Funding Summary: No funding dependencies on other programs.

D. Schedule Profile: The Advanced Technology Integrator (ATI) is an innovative concept designed to identify gaps in commercial technology prior to acquisition and full scale implementation. ATI will foster the advancement of material handling and automatic identification technologies that will benefit the DLA/DoD distribution community.

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Depot region coordination	X	X										
Contract Solicitation			X									
Contract Award (from FY 96 Solicitation)		X										
Performance on FY 96 Awards			X	X	X	X						
Routing technology initial development			X	X	X							
Begin performance on FY 97 Awards				X	X	X	X	X	X	X		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#6: Future Logistics R&D Requirements	0.000	0.000	0.000	0.000	7.147	9.181	9.404	Cont.	Cont.

A. Mission Description & Budget Item Justification:

These funds will be used for high risk and high payoff alternatives to the conventional investment programs to improve efficiency and lower costs of acquisition, supply management and distribution.

(U) Program Achievements and Plans:

(U) FY 1997:

- N/A

B. Program Change Summary: Cost in Millions

	FY 97	FY98	FY99
President's Budget Submission:	0.000	0.000	0.000
Adjustment to Appropriated Value:	N/A	N/A	N/A
Current Budget Submission:	0.000	0.000	0.000

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#6: Future Logistics R&D Requirements	0.000	0.000	0.000	.0.0	7.147	9.181	9.404	Cont.	Cont.

C. Other Program Funding Summary:
None.

D. Schedule Profile:

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Begin Logistics Technology Planning	X	X										
Develop Continuing Logistics Technology Plans	X	X	X	X	X	X	X	X	X	X	X	X

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#7: On Demand Manufacturing/CATT	0.0	5.783	0.928	0.910	0.947	1.000	1.000	Cont.	Cont.

A. Mission Description & Budget Item Justification:

This initiative is necessary to identify and establish commercial manufacturing capabilities so that DLA Centers can acquire parts as they are needed (on demand) rather than investing in excessive stock, or risking non-availability of essential parts when needed. Contracting relationships will be established to obtain small quantities of military unique items of low demand, with significantly lower costs and greatly improved response time. This is an effort to use private sector manufacturers, in addition to all other measures to obtain parts quickly. In FY98 it builds a program related to the USAF Computer Aided Technology Transfer (CATT) program. CATT establishes a network of companies to produce parts in a very short production lead time with minimum administration.

(U) Program Achievements and Plans:

(U) FY 1997:

- Seven ODM contracts have been awarded with an average reduction in production leadtime of 59% (221 days to 90 days). The ODM tools have entered beta testing.

B. Program Change Summary: Cost in Millions

	FY 97	FY98	FY99
President's Budget Submission:	0.000	0.967	0.928
Adjustment to Appropriated Value:	N/A	+4.816	----
Current Budget Submission:	0.000	5.783	0.928

APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#7: On Demand Manufacturing	0.0	5.783	0.928	0.910	0.947	1.000	1.000	Cont.	Cont.

C. Other Program Funding Summary:
None.

D. Schedule Profile:

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Continue Work at Centers to Develop Contractual Vehicles with industry	X	X	X	X	X							
Begin funding USAF related efforts (CATT)				X	X	X	X					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 3					Program Element (PE) Name & No 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#8 METALCASTING	1.875	0.000	0.000	0.000	0.000	0.000	0.000	1.970	1.970

A. Mission Description & Budget Item Justification

(U) FY 1997:

Additional components will be converted to castings; foundry process improvements will also be made.

B. Program Change Summary: Cost in Millions

	FY 97	FY98	FY99
President's Budget Submission:	1.970	0.000	0.000
Adjustment to Appropriated Value:	- .095	N/A	N/A
Current Budget Submission:	1.875	0.000	0.000

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE: FEBRUARY 1998					
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 3				Program Element (PE) Name & No 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION					
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#8: METALCASTING	1.875	0.000	0.000	0.000	0.000	0.000	0.000	1.875	1.875

C. Other Program Funding Summary:
None

D. Schedule

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Casting Conversions:		x	x	x	x							
Benchmarking		x	x	x	x							
Dimensional Capability		x	x	x	x							
Machining Reject Reduction		x	x	x	x							
Welding Repair of Casting		x	x	x	x							
Metal Casting Engineering Systems		x	x	x	x							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3					Program Element: 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#9 Military Cargo Methods	0.990	0.000	0.000	0.000	0.000	0.000	0.000	0.990	0.990

A. Mission Description & Budget Item Justification: DLA used the FY 1997 funds for two study efforts: a Military Traffic Management Command (MTMC) contract to study movement of ammunition ($693K) and a DLA study of third party logistics firms ($297K).

(U) Program Achievements and Plans:

(U) FY 1997:

- N/A

B. Program Change Summary:

	Cost in Millions		
	FY 97	FY98	FY99
President's Budget Submission:	0.990	0.000	0.000
Adjustment to Appropriated Value:	----	N/A	N/A
Current Budget Submission:	0.990	0.000	0.000

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE: FEBRUARY 1998					
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 3				Program Element (PE) Name & No 0603712S LOGISTICS R&D TECHNOLOGY DEMONSTRATION					
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#9 Military Cargo Methods	0.990	0.000	0.000	0.000	0.000	0.000	0.000	0.990	0.990

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
Military Containorized Munitions Transport		x	x									
Third Party Logistics Support		x	x									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: FEBRUARY 1998						
APPROPRIATION/BUDGET ACTIVITY: 0400/03			Program Element (PE) Name & No 0603753S ELECTRONIC COMMERCE RESOURCE CENTERS (ECRCs)						
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
TOTAL PROGRAM ELEMENT	-	46.421	-	-	-	-	-	46.421	46.421
Electronic Commerce Resource Centers (ECRCs)	-	46.421	-	-	-	-	-	46.421	46.421

A. Mission Description & Budget Item Justification: The mission of this program is the transfer of electronic commerce (EC) technologies to small- and medium-sized enterprises (SMEs) through a network of regional deployment centers. This mission is a subset of the overall Acquisition Reform Initiatives. The regional ECRCs provide training and technical assistance to aid SMEs in defense supply chains in making effective use of electronic commerce technologies. The ECRC Technology Development Activity keeps abreast of EC technologies and ensures that technical specialists in the regional ECRCs are equipped with the latest information and training on EC technologies.

B. Program Change Summary: Beginning in FY 1997, DLA assumed responsibility for the funding, management, and control of the ECRC program while DUSD(L) acts as program sponsor.

	FY97	FY98	FY99	Total Cost
Previous President's budget	-	14.972	-	
Adjustments to Appropriated Value		+31.449		
Current /President's budget request	-	46.421	-	46.421

(U) **Program Accomplishments and Plans:**

(U) FY1997: (Program Management of DARPA Funds)

- o Established 5 new regional ECRCs at the direction of Congress.
- o Trained approximately 30,000 personnel in FY 97.

(U) FY1998:

- o Continue to move vendors to take advantage of more complex and/or emerging EC capabilities.
- o Train 35,000 industry and government personnel nationwide in EC technologies
- o Foster development of a small group of SMEs capable of virtual enterprise activity to serve as a model for others to emulate.
- o Focus on engaging major major DoD Supply Chains (Aerospace, Shipbuilding, Automotive) to accelerate EC integration.

(U) FY1999:

- o This program is funded in Procurement, Defense-wide beginning in FY 1999.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE: FEBRUARY 1998						
APPROPRIATION/BUDGET ACTIVITY: *0400/03*			Program Element (PE) Name & No 0603753S ELECTRONIC COMMERCE RESOURCE CENTERS (ECRCs)						
COST (MILLIONS) FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
TOTAL PROGRAM ELEMENT -	-	46.421	-	-	-	-	-	46.421	46.421
Electronic Commerce Resource Centers (ECRCs) -	-	46.421	-	-	-	-	-	46.421	46.421

C. Other Program Funding Summary: FY 98 reflects +$33 million congressional add and net congressional/PBD reductions.

- None.
- Related Programs: None

D. Schedule Profile:

	97				98				99			
ECRC Activities	1	2	3	4	1	2	3	4	1	2	3	4
Education and Training												
DoD Suppliers	X	X	X	X	X	X	X	X				
DoD Organizations	X	X	X	X	X	X	X	X				
Others	X	X	X	X	X	X	X	X				
Outreach											N/A	
Outreach Activities	X	X	X	X	X	X	X	X				
Supply Chain Leads	X	X	X	X	X	X	X	X				
Technical Support												
DoD Suppliers	X	X	X	X	X	X	X	X				
DoD Organizations	X	X	X	X	X	X	X	X				
Others	X	X	X	X	X	X	X	X				
Technology R&D												
Research	X	X	X	X	X	X	X	X				
Development												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3	Program Element: 0603805S DUAL USE APPLICATIONS PROGRAM

COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
TOTAL PROGRAM ELEMENT	5.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000	11.000
#1: National Center for Manufacturing Sciences (NCMS)	5.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000	11.000

Mission Description & Budget Item Justification: The Defense Logistics Agency (DLA) has implemented policies and practices to reduce its operating and support costs while providing service to military customers. DLA continues to focus on issues such as total asset visibility; information technology, security and integration; diminishing sources; small-lot-volume manufacturing; privatization and outsourcing. This program depends on the National Center for Manufacturing Science (NCMS), as a not-for-profit consortium of about 235 defense and non-defense industry members, to provide DLA direct access to the best commercial practices, manufacturing technology, and out-sourcing lessens learned, and more information that is currently resident with the membership. NCMS will perform the accounting, contracting and legal, administrative and program management functions for each project, and will interact with industry, state and other federal agencies, other small consortia, and academia.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY: RDT&E, Defense-Wide/Budget Activity 3	Program Element: 0603805S DUAL USE APPLICATIONS PROGRAM

COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#1: National Center for Manufacturing Sciences (NCMS)	5.000	0.000	6.000	0.000	0.000	0.000	0.000	0.000	11.000

A. Mission Description and Justification:

Program Element: One of the initial projects among the NCMS programs, Commercial Technology for Maintenance Activities (CTMA), will dramatically change the current logistical system as it exists today. DLA will be able to develop and offer users new repair technologies, business practices, sourcing, management and controls that were previously not available through normal contracting practices. The initial phase of CTMA will involve evaluation of selected candidate projects by a Cost Analyst who will determine the benefit and pay back to DoD. If the evaluations confirm expected benefits, the projects will be funded. The later phases of this effort will involve development of formal statements of work, the designation of performers and project managers, and the execution of the projects leading to implementation and realization of the expected benefits.

(U) Program Accomplishments and Plans:

(U) FY 1997:

- Identify candidate projects for cost/benefit analysis
- Perform cost/benefit analysis for management review and assessment
- Initiate selected projects, using NCMS for detailed management, responsible to MMPRT.

(U) FY 1998:

- All DLA managed projects will be visible to management, with metrics used to measure success being applied so that the benefits can be realized from implementation.

B. Program Change Summary:

	Cost in Millions FY 97	FY98	FY99
President's Budget Submission:	0.000	0.000	0.000
Adjustment to Appropriated Value:	5.000	0.000	6.000
Current Budget Submission:	5.000	0.000	6.000

C. Other Program Funding Summary:

- None.
- Related Programs: DARPA's NCMS program transferred to DLA under PE #0603805S. FY 99 reflects a +$6 million congressional add.

D. Schedule Profile:

NCMS/CTMA will start out by analyzing cost/benefits of candidate projects To Be Determined.

	97				98				99			
	1	2	3	4	1	2	3	4	1	2	3	4
#1. NCMS/CTMA -Phase I				X	X	X	X	X	X	X	X	X

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)								Date: February 1998		
APPROPRIATION/BUDGET ACTIVITY 0400/06						PROGRAM ELEMENT (PE) NAME & NUMBER Defense Technology Analysis 0605798S *				
Cost in Millions		FY97	FY 98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Total PE Cost		13,096	8,542	5,010	5,223	5,345	5,394	5,486	Continuing	Continuing
Joint Service Training & Readiness Systems	**	2,438								
Defense Training	**	1,897								
DoD Enlistment	**	819								
Def. Technol. Anal. Ofc.		5,567	5,644	5,010	5,223	5,345	5,394	5,486	Continuing	Continuing
DRAMA/WSSP		2,375							2,375	2,375
CMSC			2,898						2,898	2,898

A. Mission Description and Budget Item Justification: (See Enclosures)

*Designated as Defense Support Activities (DSAs) in FY 97.
**Realigned as DoD Human Resources Activity (DHRA) FYs 98 thru 2003.

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 1998

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Total PE Cost	5.567	5.644	5.010	5.223	5.345	5.394	5.486	Continuing	Continuing
1. DoD Technology Analysis Ofc	5.567	5.644	4.010	4.223	4.345	4.394	4.486	Continuing	Continuing
2. Technology Integration	0.000	0.000	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing

A. Mission Description and Budget Item Justification: (See Enclosures)

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 98

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost	5.567	5.644	4.010	4.223	4.345	4.394	4.486	Continuing	Continuing
DoD Technology Analysis Ofc 0001									

A. Mission Description and Budget Justification

This program element is found in Budget Authority 6, RDT&E Management Support, to provide engineering, scientific and analytical support to the Office of the Director of Defense, Research and Engineering (ODDR&E) in its responsibility for direction, overall quality, and content of the Science and Technology (S&T) program and ensuring that the technology being developed is affordable and minimizes system development risk. The primary purpose of program element is to facilitate the development of the S&T program and conduct assessments and analyses of the S&T program to ensure maximum utilization of Research and Development funds to accomplish the overall objectives of the S&T program. Funds are required for technical and analytical support, equipment, supplies, travel, utilities, communications, facilities, and publications.

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit) Date: Feb 98

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost	5.567	5.644	4.010	4.223	4.345	4.394	4.486	Continuing	Continuing
DoD Technology Analysis Ofc 0001									

FY 1997 Program:

- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in developing strategies and plans to exploit and develop technology. (.330)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in conducting analyses, developing policies, making recommendations, and developing guidance for science and technology plans and programs. (1.211)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in reviewing proposed and approved science and technology programs and make recommendations to optimize effectiveness of the DoD investments in science and technology. (.820)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in oversight of the technological aspects of the Independent Research and Development and Small Business Innovative Research Programs. (.330)
- Provide technical support on science and technology aspects of programs subject to review by the Defense Acquisition Board and science and technology pertaining to maintaining a strong industrial base. (.440)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in execution of special interest programs such as the University research programs including the University Research Initiative, the manufacturing science and technology program, and dual use and technology transition efforts. (2.436)

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit) Date: Feb 98

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost	5.567	5.644	4.010	4.223	4.345	4.394	4.486	Continuing	Continuing
DoD Technology Analysis Ofc 0001									

FY 1998 Plans:

- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in developing strategies and plans to exploit and develop technology. (.420)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in conducting analyses, developing policies, making recommendations, and developing guidance for science and technology plans and programs. (1.630)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in reviewing proposed and approved science and technology programs and make recommendations to optimize effectiveness of the DoD investments in science and technology.(.944)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in oversight of the technological aspects of the Independent Research and Development and Small Business Innovative Research Programs. (.150)
- Provide technical support on science and technology aspects of programs subject to review by the Defense Acquisition Board and science and technology pertaining to maintaining a strong industrial base. (.250)
- Provide engineering, scientific, analytical, and managerial support to the ODDR&E in execution of special interest programs such as the University research programs including the University Research Initiative, the manufacturing science and technology program, and dual use and technology transition efforts. (2.250)

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit) Date: Feb 98

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost	5.567	5.644	4.010	4.223	4.345	4.394	4.486	Continuing	Continuing
DoD Technology Analysis Ofc 0001									

FY 1999 Plans:

- o Provide engineering, scientific, analytical, and managerial support to the ODDR&E in developing strategies and plans to exploit and develop technology. (.281)
- o Provide engineering, scientific, analytical, and managerial support to the ODDR&E in conducting analyses, developing policies, making recommendations, and developing guidance for science and technology plans and programs. (1.164)
- o Provide engineering, scientific, analytical, and managerial support to the ODDR&E in reviewing proposed and approved science and technology programs and make recommendations to optimize effectiveness of the DoD investments in science and technology.(.628)
- o Provide engineering, scientific, analytical, and managerial support to the ODDR&E in oversight of the technological aspects of the Independent Research and Development and Small Business Innovative Research Programs. (.100)
- o Provide engineering, scientific, analytical, and managerial support to the ODDR&E in execution of special interest programs such as the University research programs including the University Research Initiative, the manufacturing science and technology program, and dual use and technology transition efforts. (1.838)

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 98

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost	5.567	5.644	4.010	4.223	4.345	4.394	4.486	Continuing	Continuing
DoD Technology Analysis Ofc 0001									

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	5.576	5.992	6.066	Continuing
Adjustments to Appropriated Value	-.009	0.348	2.056	Continuing
Current Budget Submit/President's Budget	5.567	5.644	4.010	Continuing

Change Summary Explanation: Change in the FY 1997 appropriation reflects -$9K withdrawal of funds rescinded as part of the FY 1997 DoD Supplemental. FY 98 adjustments reflect pro rata share of undistributed adjustment in the FY 98 appropriation Act. FY 99 adjustment transfers personnel cost to USD(A&T) O&M accounts.

C. Other Program Funding Summary N/A

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 98

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost	5.567	5.644	4.010	4.223	4.345	4.394	4.486	Continuing	Continuing
DoD Technology Analysis Ofc 0001									

D. Schedule Profile:

	FY 97				FY 98				FY 99				FY 00			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Operations	.570	.680	.550	.550	.570	.680	.550	.550	.065	.175	.045	.045	.025	.130	.025	.025
S&T Support	.720	1.475	.922	.100	.720	1.552	.922	.100	.720	1.860	1.000	.100	.785	2.223	1.000	.010

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 1998

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost									
Technology Integration 0002	0.000	0.000	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing

A. Mission Description and Budget Justification

Technology Integration (TI) activities advance international science and technology (S&T) cooperation via the identification of specific projects of bilateral or multilateral interest. It provides management assistance for the restructuring of NATO's Research & Technology Organization (RTO) and an advisory role to "The Technical Cooperation Program" (TTCP) English speaking nations. This Defense Reform Initiative related effort will leverage Tri-Service S&T dollars through new and ongoing international partnerships. Technology Integration activities also provide funding support to Services for administrative, travel, conference support, technical evaluations and related
activities.

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 1998

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost									
Technology Integration 0002	0.000	0.000	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing

FY 1997 Program:

Not applicable

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 1998

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost									
Technology Integration 0002	0.000	0.000	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing

FY 1998 Plans:

Not applicable.

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 1998

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost									
Technology Integration 0002	0.000	0.000	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing

FY 1999 Plans:

o Foster international bilateral and multilateral cooperative agreements in high value science & technology areas with allies, nonaligned nations and former Soviet Block nations. Then establish data exchange agreements, engineer and scientist exchange program visits, international technology assessments and new cooperative programs. ($.2M)

o Identify specific and mutually advantageous cooperative projects in DOD technologies to Services and potential international partners. Examples of such include but are not limited to; systems, medical and biomedical science, infectious disease research, burn and hemorrhage care, and international telemedicine technology. ($.4M)

o Seek opportunities for international cooperation in high priority S&T. One such example is the worldwide interest in humanitarian demining technologies and safe removal of unexploded ordinance (UXO). Conduct intradepartmental coordination to achieve goals as necessary. ($.3M)

o Identify Service specific Defense Technology Objective (DTO) financial shortfalls. Then seek international partners willing to share technology, human and financial resources needed to achieve mutual objectives. ($.1M)

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 1998

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost									
Technology Integration 0002	0.000	0.000	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	0.000	0.000	0.000	Continuing
Adjustments to Appropriated Value	0.000	0.000	1.000	Continuing
Current Budget Submit/President's Budget	0.000	0.000	1.000	Continuing

Change Summary Explanation: FY 99 adjustment restructures the Department's participation in Research and Technology Organizations. This transfers NATO science and technology support funding from the OSD managed PEs into this project.

C. Other Program Funding Summary N/A

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)

Date: Feb 1998

APPROPRIATION/BUDGET ACTIVITY
0400/06

PROGRAM ELEMENT (PE) NAME & NUMBER
Defense Technology Analysis 0605798S

Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
Project name/No. and Subtotal Cost									
Technology Integration 0002	0.000	0.000	1.000	1.000	1.000	1.000	1.000	Continuing	Continuing

D. Schedule Profile:

	FY 97				FY 98				FY 99				FY 00			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Operations	.000	.000	.000	.000	.000	.000	.000	.000	..020	.050	.050	.050	..020	.050	.050	.050
Support	.000	.000	.000	.000	.000	.000	.000	.000	.300	.350	.150	..030	.300	.350	.150	..030

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)								Date: FEBRUARY 1998	
APPROPRIATION/BUDGET ACTIVITY 0400/06			PROGRAM ELEMENT (PE) NAME & NUMBER Defense Support Activities 0605798S						
Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY01	FY02	FY03	Cost to Complete	Total Cost
0005 DRAMA/WSSP	2,375	-----	----	----	-----	-----	----	0.0	2,375

A. Mission Description and Budget item Justification

FY97 Data Review Analysis and Monitoring Aid (DRAMA)/WSSP

DRAMA is an enabling technology that allows continuous exchange of management data throughout the life cycle of weapon systems. This technology improves and automates existing inventory control and distribution processes. It improves managers access to scheduled maintenance activities and the resulting impact on item demand. The technology developed in DRAMA is being applied to the expansion ot the Weapon System Support Program (WSSP) per DoD IG report number 97-041 dated 10 December 1996. Benefits include reduction in 2nd and 3rd generation shipping delivery cost, time, and storage; reduction of inventory storage facilities and support personnel. DLA historically has operated in a reactive mode relying on historical demand without insight into service programmatic data and scheduled maintenance cycle. The technology injects expert system technology and utilizes trend analysis techniques to place DLA in a cost effective predictive posture. This capability allows DLA to anticipate requirements, analyze performance in the execution of those requirements and accomplish real time support process adjustments as necessary to provide as close to just-in-time materiel support to the user as practical The described system, coupled with the interactive materiel management databases, will have the capability to interact with mission and design changes as they occur and predict the effect of those changes on the material support requirements of the customer. Feedback information will be provided to both DLA and the customer automatically. The closed loop feed back will be facilitated over the common operating environment infrastructure. This program reflects a congressional add in FY 97.

B. Program Change Summary	FY 97	FY 98	FY99	Total Cost
Previous President's Budget	2.379			2.379
Adjustments to Appropriated Value	- .004			
Current Budget Submit/President's Budget	2.375			2.375

FY 97 funding reflects -$4k withdrawal of funds rescinded as part of the FY 1997 DoD Supplemental.

C. Other Program Funding Summary N/A

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)								Date: FEBUARY 1998	
APPROPRIATION/BUDGET ACTIVITY 0400/06			PROGRAM ELEMENT (PE) NAME & NUMBER Defenses Technical Analysis 0605798S						
Cost in Millions	FY 97	FY 98	FY 99	FY 00	FY01	FY02	FY03	Cost to Complete	Total Cost
0003 CMSC		2,898	—	—	—	—	—	0.0	2,898

A. Mission Description and Budget item Justification

FY98 Commodity Management System Consolidation

The Commodity Management System (CMS) and integration team is charged with transitioning Commodity Systems to support the DoD Logistics 2010 Vision. This plan includes reducing response time, operational costs, inventory and enhances customer satisfaction. To support this, the existing commodity management systems, in use by the Defense Logistics Agency (DLA), must be migrated to a common operating environment which utilizes shared data, business rules, and global data management.

Consolidation and integration of all the commodity management systems used by the DLA is a large-scale effort. In order to manage program risk, the migration strategy must be designed to include a series of manageable successes which combine incremental development, testing and fielding manageable subsets of the databases of legacy systems. This build a little, test a little approach assists DLA in early identification of risks of technology changes, staff turnovers, and of business process changes, and will provide management information to migrate those risks effectively and with a minimum of effort. It also improves the flexibility of the overall migration effort. Structurally, project flexibility will allow DLA to reprioritize portions of the migration effort to resolve critical issues such as:
This program reflects a congressional add in FY 98.

B. Program Change Summary	FY 97	FY 98	FY99	Total Cost
Previous President's Budget		3,000		3,000
Adjustments to Appropriated Value		-102		
Current Budget Submit/President's Budget		2,898		2,898

FY 98 funding reflects -$102k per Congressional

C. Other Program Funding Summary N/A

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)								Date: FEBURARY 1998	
APPROPRIATION/BUDGET ACTIVITY 0400/06						PROGRAM ELEMENT (PE) NAME & NUMBER 0605798S Defense Technology Analysis			
Cost in Millions	FY97	FY98	FY 99	FY 00	FY01	FY02	FY 03	Cost to Complete	Total Cost
0003 CMSC		2,898	———	———	———	———	———	0.0	2.898

D. Schedule Profile

Commodity Management System Consolidation

	FY 97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4
Phase I - Develop MM Architecture					X							
Phase II - Interface with interactive materiel management data bases						X						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) February 1998

APPROPRIATION ACTIVITY
0400/06 MISSION SUPPORT

R-1 ITEM NOMENCLATURE
DEFENSE TECHNICAL INFORMATION SERVICES
PE 0605801S

COST (In Millions)	FY 97	FY 98	FY 99*	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
0605801S Defense Technical Information Services	43.315	45.413							
001 Defense Technical Information Center	32.034	33.504							
002 Information Analysis Centers	11.281	11.909							

A. Mission Description and Budget Item Justification: The Defense Technical Information Services Program Element provides resources for the Defense Technical Information Center (DTIC) and the DoD Information Analysis Centers (IACs). DTIC's mission and function is to provide for the centralized operation of DoD Services for the acquisition, storage, retrieval, and dissemination of Scientific and Technical Information (STI), including data which is restricted, controlled and/or classified. DTIC also functions as the central activity within the DoD for exploring and applying advanced techniques and technology to DoD STI systems and for developing improvements in service and STI transfer effectiveness, and administratively manages the IAC program. DTIC's concept of operations is to function as the "front" door to DoD unclassified and unlimited information resources for customers internal and external to DoD; as the door to controlled information resources for internal DoD use; and as a repository and processor for STI. The IACs, each devoted to a particular technology area, are part of the program to share information resources in a coordinated manner and further leverage the technology base by maintaining a staff of subject experts to provide in-depth analysis and to create specialized technical information products. The maintenance of a centralized program is a cost effective and efficient means to provide access to and transfer information among DoD personnel, DoD contractors and potential contractors, and other federal agencies and their contractors. The Program Element is under BA 6, Mission Support, which provides for the support of operations required for use in general research and development and not allocable to specific missions.

* As part of the Defense Reform Initiative, management control of DTIC was transferred from the Director, Defense Research and Engineering to the Director, Defense Information Systems Agency.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) February 1998

APPROPRIATION ACTIVITY
0400/06 MISSION SUPPORT

R-1 ITEM NOMENCLATURE
DEFENSE TECHNICAL INFORMATION SERVICES
PE 0605801S

COST (In Millions)	FY 97	FY 98	FY 99*	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
001 Defense Technical Information Center	32.034	33.504							

Mission Description and Budget Item Justification: DTIC collects or electronically connects to sources of information generated by the DoD or information relevant to its mission. DTIC's collection efforts reflect the immediate and long-term information needs of the DoD community. The primary focus is on acquiring current documentation and management summaries to support a DoD component's mission responsibility. DTIC acquires scientific, technical, engineering, management, studies and analysis, and other types of information, in any media or format, which meets the needs of the Defense community. That information is then disseminated electronically, on paper, or on other physical media, to others in DoD to help accomplish DoD-related business. DTIC's holdings include technical reports, management summaries at the work unit level, Independent Research and Development summaries, and special collections such as captured German and Japanese documents that date back to World War II. DTIC's role is to ensure that all significant or technological observations, findings, recommendations and results derived from DoD endeavors are accessible to authorized users. For the United States to maintain its readiness and competitiveness with the industrialized nations, such scientific and technical information must be readily available and easily transferable. DTIC is moving aggressively to fully exploit the benefits of electronically disseminating its internal collection as well as developing tools to access external databases, and to reach end users (scientists, engineers, R&D managers, etc.) in rapidly increasing numbers. Using the latest computer and communications technologies, we annually annually nearly 1.3 million documents and research and development management information summaries to our users, in addition to more than .75 million on-line interrogations of our databases, and have developed and host over 90 web sites, providing more than 96 million accesses per year. The military, universities, managers, scientists, engineers, and contractors look to DTIC for leadership in the advancement of information access and sharing. DTIC currently serves more than 4800 organizations located in the U.S. and overseas.

* Funding was realigned to Defense Information Systems Agency (PE 0605801K)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	February 1998
APPROPRIATION ACTIVITY	R-1 ITEM NOMENCLATURE
0400/06 MISSION SUPPORT	DEFENSE TECHNICAL INFORMATION SERVICES PE 0605801S

FY 1997 ACCOMPLISHMENTS:

- Ongoing Operations - Basic operation of DTIC including the output of products and services, personnel, maintenance of equipment, and payment for support services, i.e. personnel processing, building services and maintenance, legal support, etc., paid to other government agencies via Interservice Support Agreements (1 Qtr - 4 Qtr; $27.408 Million).
- Improved Access, Dissemination and Use of Information - Funded efforts to capture information, including full text STI, in the electronic form from contributors and efforts to improve methods to collect, index and store information at DTIC or through remote access. Modernization efforts included implementing electronic input and storage of classified as well as unclassified documents in the Electronic Document Management System. Included continued utilization of the Internet to disseminate information and development of tools like OmniPort which provide a user friendly interface to multiple information sources. Explored new methods of encryption and authentication to protect classified and unclassified but sensitive information (2 Qtr - 3 Qtr; $2.321 Million) .
- Business Process Reengineering - Managed the Business Process Reengineering (BPR) effort for the Director, Defense Research and Engineering (DDR&E). Effort consists of reengineering S&T processes to achieve greater mission effectiveness and standardizing business management data to promote interoperability, minimize duplication, and enhance information available to the decision maker at all levels. Some products of these efforts included: reengineering the data collection process/method used to publish the 1996 RDT&E In House Activities Report, the introduction of the Science and Technology INFOWEB which provides decision makers a single source with accurate and reliable information to effectively manage the S&T Program; and the development of collaboration tools used by the DDR&E staff and Reliance (a Joint Service/Agency group) to update selected Defense S&T Planning Documents (1 Qtr - 4 Qtr; $2.305 Million).

FY 1998 PLANS:

- Ongoing Operations - Basic operation of DTIC including the output of products and services, personnel, maintenance of equipment, and payment for support services, i.e. personnel processing, building services and maintenance, legal support, etc., paid to other government agencies via Interservice Support Agreements (1 Qtr - 4 Qtr; $29.019 Million).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	February 1998
APPROPRIATION ACTIVITY	R-1 ITEM NOMENCLATURE
0400/06 MISSION SUPPORT	DEFENSE TECHNICAL INFORMATION SERVICES PE 0605801S

FY 1998 PLANS CONT.:

• Improved Access, Dissemination and Use of Information - DTIC will begin development of a Defense Virtual Library that will identify key government and commercial information resources and present them in a customized, integrated manner to foster collegial effort in specific DoD communities. Develop, test, and integrate into the operational environment of the Electronic Document Management System an interface to facilitate the input and exchange of electronic documents between DTIC, its contributors, and its customers. Introduce multimedia information products that operate in multi-platform environments and are capable of real time video streaming (2 Qtr - 3 Qtr; $2.015 Million).

•Business Process Reengineering - Continue management of BPR effort for the Director, Defense Research and Engineering (DDR&E). Efforts consist of reengineering S&T processes to achieve greater mission effectiveness and standardizing business management data to promote interoperability, minimize duplication, and enhance information available to the decision maker at all levels (1 Qtr - 4 Qtr; $2.470 Million).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) February 1998

APPROPRIATION ACTIVITY
0400/06 MISSION SUPPORT

R-1 ITEM NOMENCLATURE
DEFENSE TECHNICAL INFORMATION SERVICES
PE 0605801S

B. Program Change Summary

	Cost in Millions			Total
	FY 97	FY 98	FY 99	Cost
FY 98/99 President's Budget Submission	31.903	34.624	35.541	Cont.
Appropriated Value	33.272	34.624	35.541	
Adjustment to Appropriated Value				
a. Congressional Undistributed Reductions	-1.369	-1.120		
b. Internal Reprogramming with IACs	+.173			
c. Inflation Adjustment	-.042			
d. QDR Reduction			-.717	
e. Defense Reform Initiative transfer to DISA			-34.824	
FY 99 President's Budget Submission	32.034	33.504	0	Cont.

Change Summary Explanation:

Funding: Reductions stated above, transfer to DISA in FY 99 (PE 0605801K)
Schedule: N/A
Technical: N/A

C. Other Program Funding Summary: No related efforts.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	February 1998
APPROPRIATION ACTIVITY 0400/06 MISSION SUPPORT	R-1 ITEM NOMENCLATURE DEFENSE TECHNICAL INFORMATION SERVICES PE 0605801S

D. Schedule Profile:

	FY 97				FY 98				FY 99			
	1	2	3	4	1	2	3	4	1	2	3	4
Electronic Document Management System (EDMS):												
Developed classified processing capability (Interim Capability)		X										
Implemented classified processing capability			X									
Developed software for electronic input						X						
Completed Interim Capability software development							X					
OmniPort												
Completed field trial of User Interface		X										
Completed integration of User Interface and Multiple Knowledge Base Options			X									
Defense Virtual Library												
Develop and implement text and photographic format					All Qtrs							
Video formet development					All Qtrs							
Develop long-term universal locator service for web-based information					All Qtrs							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	February 1998
APPROPRIATION ACTIVITY 0400/06 MISSION SUPPORT	R-1 ITEM NOMENCLATURE DEFENSE TECHNICAL INFORMATION SERVICES PE 0605801S

COST (Millions)	FY 97	FY 98	FY 99*	FY 00	FY 01	FY 02	FY 03	Cost to Complete	Total Cost
002 Information Analysis Centers	11.281	11.909							

A. Mission Description and Budget Item Justification: The IACs are contractor operated research organizations chartered by OSD to collect, analyze, synthesize and disseminate worldwide scientific and technical information in specialized fields to prevent re-inventing research and to promote standardization within these fields. The IACs are staffed with subject experts to provide compilation of information, synthesize and evaluate it for relevancy to specific inquiries, supply in-depth analysis services and create specialized technical information products. IACs respond to technical inquiries, prepare state-of-the-art reports, handbooks and databooks, perform technology assessments, and support exchange of information among scientists, engineers, and practitioners of disciplines within the scope of the IAC. The DoD IAC program continues to experience significant growth in work requirements. This growth can be attributed to DoD customers recognizing that IACs can be used to synthesize existing information and provide expert technical advice resulting in better use of diminishing RDT&E and procurement resources. There are 23 DoD IACs, 7 operated within the Army (using Army personnel to perform IAC functions), 2 by the Air Force, 1 by Defense Special Weapons Agency (DSWA) and 13 funded and managed by DTIC. This project funds the basic operations described above for the DTIC managed IACs as well as the IAC Program Management Office (PMO) located at Ft. Belvoir. The program office provides management and oversight of the 13 DTIC funded IACs. The PMO also promotes DoD IAC awareness, acts as liaison between government and contractors, writes and implements policy, establishes infrastructure and maintenance, and provides operational forces technical support. Acquisition functions performed by PMO include initiating and managing primary contracting officers' functions and contracting officers' technical representative functional oversight. DTIC and its IAC program are the central source for scientific and technical information and support for the Defense research community and war fighting commands.

* Funding was realigned to Defense Information Systems Agency (PE 0605801K)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	February 1998
APPROPRIATION ACTIVITY	R-1 ITEM NOMENCLATURE
0400/06 MISSION SUPPORT	DEFENSE TECHNICAL INFORMATION SERVICES PE 0605801S

FY 1997 Accomplishments:

- Funds personnel and operational costs for the IAC Program Management Office. Raised IAC awareness in all three services by waging a vigorous campaign of education and information to encourage use of IAC expertise. To promote efficiency, the PMO consolidated the IACs from 15 to 13 and added two additional technologies - Advanced Coatings and Organic materials and Information Assurance. PMO expanded promotion efforts to include both the acquisitions and operations communities. This effort promoted communication among the communities thereby merging operational requirements with available technologies to shorten acquisition lead time and more closely relate research and development to the needs of the warfighter. Continued efforts to work toward a paperless office by expanding the electronic Office Filing System (OFS) to include receipt of electronically transmitted documents and integration with other office programs. Expanded Performance Results Evaluation & Management Information System (PREMIS), previously called "Technical Area Task Tracker & Reporting System" to accommodate compliance with GPRA at all IACs. Increased use of electronic communication through the Internet and established INTELINK connections at Secret and Top Secret Levels (1 Qtr - 4 Qtr; $1.248 Million).
- Provides basic operational support for the DTIC sponsored, contractor operated IACs (1 Qtr - 4 Qtr; $10.033 Million). Examples of accomplishments include:
  - Enhanced and expanded the traditional roles of the IAC.
  - Established knowledge based tools to allow end user to connect with relevant information more directly and easily.
  - Analyzed and developed performance metrics and measures. Reviewed managerial accountability, flexibility, budgeting and preparation of performance measurement documents for the IAC program, in support of GPRA.
  - Reprocured 5 IACs, including contract close-out and transfer of databases and equipment to new contractors.
  - Supported DoDs newest and most critical technology threat by establishing the Information Assurance Technology IAC (IATAC).
  - Met the growth in demand for S&T information support by performing an increased level of tasks and responding to increased level of inquiries.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	February 1998
APPROPRIATION ACTIVITY	R-1 ITEM NOMENCLATURE
0400/06 MISSION SUPPORT	DEFENSE TECHNICAL INFORMATION SERVICES PE 0605801S

FY 1998 PLANS:

● Funds personnel and operational costs for the IAC Program Management Office. Promote and expand IAC awareness, continue to host numerous Information Center Symposiums to bring all DoD and other government agency IACs together into a common forum, and promote cooperative teaming of IAC capabilities and broaden our information leveraging capabilities. Automate internal Office Filing System (OFS) to accept delivery of data from multiple external databases. Integrate OFS and the Performance Results Evaluation & Management Information System (PREMIS), providing the capability to track and generate work unit information and technical report documentation into a seamless process. Expand PREMIS to include secure acquisition system environment, facilitating the acquisition process, lessening cycle time, and lower reprocurement costs. Develop tools for application of information transfer at TOP SECRET level (compartmental) for INTELINK. Investigate new technology areas for possible incorporation into the IAC program. Meet the increased demand for S&T tasks and inquiries caused by the disassembly of organizational in-house S&T information functions. Identify government information collections abandoned by disestablished organizations that should be transferred and incorporated into the IAC program (1 Qtr - 4 Qtr; $1.581 Million).

● Provides basic operational, technical monitor, and security office support for DTIC sponsored, contractor operated IACs (1 Qtr - 4 Qtr; $10.328 Million). Examples of planned accomplishments include:

- Expand DMSTTIAC to incorporate the growing needs of the Modeling & Simulation communities and support to acquisition and training communities including CINCs.
- Pursue the development of the ability to monitor foreign capabilities through links established with DoD operational and intelligence communities.
- Continued enhancements to the IAC hub and home pages including automated feedback forms and automated responses to requests for information.
- Re-compete 3 DoD IACs. Realign and/or close selected IACs in order to continue support of the most significant current Defense Technology Objectives within current budget restrictions.
- Investigate expansion of IACs to cover space technologies.
- Investigate moving PREMIS to a web-based management system.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	February 1998
APPROPRIATION ACTIVITY 0400/06 MISSION SUPPORT	R-1 ITEM NOMENCLATURE DEFENSE TECHNICAL INFORMATION SERVICES PE 0605801S

B. Program Change Summary

	Cost in Millions			Total
	FY 97	FY 98	FY 99	Cost
FY 98/99 President's Budget Submission	11.479	12.306	12.630	Cont.
Appropriated Value	11.966	12.306	12.630	
Adjustment to Appropriated Value				
a. Congressional Undistributed Reductions	-.487	-.397		
b. Internal Reprogramming	-.173			
c. Inflation Adjustment	-.025			
d. QDR Reduction			-.254	
e. Defense Reform Initiative transfer to DISA			-12.376	
FY 99 Budget Submission	11.281	11.909	0	

Change Summary Explanation:

Funding: Reductions stated above, funding transferred to DISA in FY 99 (PE 0605801K)

Schedule: N/A

Technical: N/A

C. Other Program Funding Summary: Not applicable.

D. Schedule Profile: Not Applicable.

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: 0400/06					PROGRAM ELEMENT (PE) NAME & NUMBER: Defense Human Resources Activity 0605803S				
COST (In Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	COST TO COMPLETE	TOTAL COST
Total PE Cost	* 7,041	8,016	8,248	8,371	8,958	9,033	9,200	Continuing	Continuing
0001 Joint Service Training & Readiness Systems & Development	3,325	3,531	3,636	3,707	3,978	4,013	4,050	Continuing	Continuing
0002 Defense Training Resource Analysis	2,614	2,774	2,855	2,891	3,123	3,152	3,184	Continuing	Continuing
0003 DoD Enlistment Processing and Testing	1,102	1,711	1,757	1,773	1,857	1,868	1,966	Continuing	Continuing

A. Mission Description and Budget Item Justification: (See Enclosures)
Funding reflects the partial realignment funds from the Defense Manpower Data Center (DMDC) Defense Support Activity to the DoD Human Resources Activity (DHRA) beginning in FY97 (partial funds (1,887) moved) with total funding moved from DMDC to DHRA for FY98-03. The Department approved the merger of Defense Manpower Data Center (DMDC) and Defense Civilian Personnel Management Service to form a single field activity the Defense Human Resources Activity. FY 97 funding reflects funds previously requested under DMDC's Defense Support Activity Program Element Code.

*FY97 Funding split: 5,154 (DSA-PE0605798S); 1,887 (new DoD HRA-PE).

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: 0400/06					PROGRAM ELEMENT (PE) NAME & NUMBER: Defense Human Resources Activity 0605803S				
COST (In Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	COST TO COMPLETE	TOTAL COST
Total PE Cost	7,041	8,016	8,248	8,371	8,958	9,033	9,200	Continuing	Continuing
0001 Joint Service Training & Readiness Systems & Development	3,325	3,531	3,636	3,707	3,978	4,013	4,050	Continuing	Continuing
0002 Defense Training Resource Analysis	2,614	2,774	2,855	2,891	3,123	3,152	3,184	Continuing	Continuing
0003 DoD Enlistment Processing and Testing	1,102	1,711	1,757	1,773	1,857	1,868	1,966	Continuing	Continuing

A. Mission Description and Budget Item Justification

0001 The Joint Service programs were established by the Secretary of Defense to improve the training and readiness of the Active and Reserve Components. The PE is located in Budget Activity 6, RDT&E Management Support to expedite the prototype development of new training and readiness technologies and Joint Service training and readiness systems to improve the training and readiness effectiveness and enhance the performance of the military forces. It also facilitates the sharing of training and readiness information, while allowing for the transfer of emerging and innovative technologies among the Services and private sector.

0002 This project supports the Defense Human Resources Activity (DHRA), and DoD training managers (OSD, Joint Staff, Unified Commands, and the Services) in promoting more efficient and effective use of training resources, increasing the effectiveness of military training and enhancing the readiness and performance of the military forces. Projects analyze the contributions to readiness of various training techniques and programs and use the results to expedite new training concepts and procedures that increase unit effectiveness or decrease costs. Emphasis is placed on developing analytical tools and systematic methodologies to improve training resource allocations.

0003 The project is located in Budget Authority 6, RDT&E Management Support, to administer testing programs which enable the Armed Services to select highly qualified military recruits. The DoD uses a single test, the Armed Services vocational Aptitude Battery (ASVAB) to determine eligibility of military applicants and to report recruit quality data to Congress. High quality recruits are obtained from administering the ASVAB annually to approximately 600,000 applicants for Military Service as part of the DoD Enlistment Testing Program, and to 1 million students in the DoD Student Testing Program. Each Service also uses ASVAB test forms developed in this program as part of their in-service testing programs.

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)								DATE: FEBRUARY 1998	
APPROPRIATION/BUDGET ACTIVITY: 0400/06					PROGRAM ELEMENT (PE) NAME & NUMBER: Defense Human Resources Activity 0605803S				
COST (In Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	COST TO COMPLETE	TOTAL COST
Total PE Cost	7,041	8,016	8,248	8,371	8,958	9,033	9,200	Continuing	Continuing
0001 Joint Service Training & Readiness Systems & Development	3,325	3,531	3,636	3,707	3,978	4,013	4,050	Continuing	Continuing
0002 Defense Training Resource Analysis	2,614	2,774	2,855	2,891	3,123	3,152	3,184	Continuing	Continuing
0003 DoD Enlistment Processing and	1,102	1,711	1,757	1,773	1,857	1,868	1,966	Continuing	Continuing

A. Mission Description and Budget Item Justification: (Continued)

0003 New ASVAB test forms and related support materials are implemented every four years. This allows DoD to make measurement improvements as well as decrease the likelihood of test compromise. Ongoing RDT&E efforts control functions include development and evaluation of procedures (1) reduce or eliminate threats to the validity of the ASVAB test scores generated; (2) improve the efficiency of the test development, calibration, and validation process; and (3) improve selection and classification decisions made by each Service through more effective use of test score information. In addition, periodic assessments are required to provide DoD manpower planners and Congress with information on aptitude trends in the population from which recruits are drawn.

B. Program Change Summary	FY 97	FY 98	FY99	TOTAL COST
Previous President's Budget	7,053	8,285	8,410	Continuing
Adjustments to Appropriated Value	- 12	-269	-162	
Current Budget Submit/President's Budget	7,041	8,016	8,248	Continuing

Change Summary Explanation: FY97 net adjustment reflects a -12K withdrawal of funds rescinded as part of the FY97 DoD Supplemental . FY98 reflects -$269K net Congressional reductions. FY99 reflects -$162K inflation adjustment.
Note: $1887K realigned to new DoD HRA

C. Other Program Funding Summary (N/A)

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: 0400/06					PROGRAM ELEMENT (PE) NAME & NUMBER: Defense Human Resources Activity 0605803S				
COST (In Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	COST TO COMPLETE	TOTAL COST
0001 Joint Service Training & Readiness Systems & Development	3,325	3,531	3,636	3,707	3,978	4,013	4,050	Continuing	Continuing

A. Mission Description & Budget Item Justification

0001 The Joint Service programs were established by the Secretary of Defense to improve the training and readiness of the Active and Reserve Components. The PE is located in Budget Activity 6, RDT&E Management Support, to expedite the prototype development of new training and readiness technologies and Joint Service training and readiness systems to improve the training and readiness effectiveness and enhance the performance of the military forces. It also facilitates the sharing of training and readiness information, while allowing for the transfer of emerging and innovative technologies among the Services and private sector.

B. Program Change Summary

	FY97	FY98	FY99	TOTAL COST
Previous President's Budget	3,337	3,649	3,707	Continuing
Adjustments to Appropriated Value	- 12	-118	-71	
Current President's Budget Submission	3,325	3,531	3,636	Continuing

C. Other Program Funding Summary (N/A)

D. Schedule Profile

FY1997 Accomplishments: (3,325)

- o Continue developing a library of joint operations templates defining tasks included in conducting joint exercises
- o Develop technology to provide distributed training to Joint Task Force staffs
- o Continue development of technology to link Joint Mission Essential Task Lists to measurable standards and conditions in order to analyze joint service training requirements
- o Develop a system to monitor, assess and report joint readiness
- o Develop implementation plans for new distance learning technologies across DoD and civilian agencies

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: 0400/06					PROGRAM ELEMENT (PE) NAME & NUMBER: Defense Human Resources Activity 0605803S				
COST (In Millions)	**FY97**	**FY98**	**FY99**	**FY00**	**FY01**	**FY02**	**FY03**	**COST TO COMPLETE**	**TOTAL COST**
0001 Joint Service Training & Readiness Systems & Development	3,325	3,531	3,636	3,707	3,978	4,013	4,050	Continuing	Continuing

FY1998 Plans (3,531)

- o Demonstrate distributed interactive simulation capability for joint combat support operations
- o Develop methods to reengineer individual training processes
- o Develop procedures to conduct simulated joint fire support training
- o Build a system to archive joint training effectiveness data

FY1999 Plans (3,636)

- o Evaluate distributed interactive simulation used to train for joint training
- o Continue development of procedures to conduct simulated joint fire support training
- o Continue building a system to archive joint training effectiveness date
- o Oversee implementation of methods developed to reengineer individual training processes
- o Develop analytical tools to relate readiness to resources

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY: 0400/06	**PROGRAM ELEMENT (PE) NAME & NUMBER:** Defense Human Resources Activity 0605803S

COST (In Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	COST TO COMPLETE	TOTAL COST
0002 Defense Training Resource Analysis	2,614	2,774	2,855	2,891	3,123	3,152	3,184	Continuing	Continuing

A. Mission Description & Budget Item Justification

0002 This project supports the Defense Human Resources Activity (DHRA) and DoD training managers (OSD, Joint Staff, Unified Commands and the Services) in promoting more efficient and effective use of training resources, increasing the effectiveness of military training and enhancing the readiness and performance of the military forces. Projects analyze the contributions to readiness of various training techniques and programs and use the results to expedite new training concepts and procedures that increase unit effectiveness or decrease costs. Emphasis is placed on developing analytical tools and systematic methodologies to improve training resource allocations.

B. Program Change Summary	FY97	FY98	FY99	TOTAL COST
Previous President's Budget	2,614	2,867	2,912	Continuing
Adjustments to Appropriated Value		-93	-57	
Current President's Budget Submission	2,614	2,774	2,855	Continuing

C. Other Program Funding Summary (N/A)

D. Schedule Profile

FY 1997 Accomplishments (2,614)

- o Generate an improved mechanism to predict readiness and sustainability postures for given resource levels
- o Develop an advanced set of modules relating train-up time to resources needed to achieve this level
- o Begin developing a new decision support system to track unit training events to collective unit training resources

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)								DATE: FEBRUARY 1998	
APPROPRIATION/BUDGET ACTIVITY: 0400/06					**PROGRAM ELEMENT (PE) NAME & NUMBER:** Defense Human Resources Activity 0605803S				
COST (In Millions)	**FY97**	**FY98**	**FY99**	**FY00**	**FY01**	**FY02**	**FY03**	**COST TO COMPLETE**	**TOTAL COST**
0002 Defense Training Resource Analysis	2,614	2,774	2,855	2,891	3,123	3,152	3,184	Continuing	Continuing

FY 1998 Plans (2,774)

- o Develop a system to provide resources, facilities and simulations for effective Service-level and joint training
- o Demonstrate methods to estimate future resource needs for readiness
- o Develop guidelines for using networked simulation to improve mission readiness through rehearsal and risk assessment

FY 1999 Plans (2,855)

- o Continue development of a system to provide resources, facilities and simulations for effective Service-level and joint training
- o Develop comprehensive DoD strategy to gain full benefit from embedded training technologies
- o Develop recommendations to increase the use of private-sector in performing training functions
- o Examine opportunities for training consolidation

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY: 0400/06	**PROGRAM ELEMENT (PE) NAME & NUMBER:** Defense Human Resources Activity 0605803S

COST (In Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	COST TO COMPLETE	TOTAL COST
0003 DoD Enlistment Processing and Testing	1,102	1,711	1,757	1,773	1,857	1,868	1,966	Continuing	Continuing

A. Mission Description & Budget Item Justification

0003 The primary mission is to test and implement more accurate methods of assessing aptitudes required for military enlistment, success in training, and performance on the job. Also, it includes implementing methods that are useful in the identification of persons with the high aptitudes required by today's smaller and technically more demanding military.

B. Program Change Summary	FY97	FY98	FY99	TOTAL COST
Previous President's Budget	1,102	1,769	1,791	Continuing
Adjustments to Appropriated Value		-58	-34	
Current President's Budget Submission	1,102	1,711	1,757	Continuing

C. Other Program Funding Summary **(N/A)**

D. Schedule Profile

FY 1997 Accomplishments: (1,102)

DoD Enlistment Testing Program (ETP)
- o Develop and calibrate new test items for the next generation of CAT-ASVAB forms.
- o Implement new CAT-ASVAB Forms 3/4.

DoD Student Testing Program (STP)
- o Implement new ASVAB 23/24 Career Exploration Program materials and documents.
- o Begin development of major revision of the DoD STP document called *Military Careers.*
- o Implement new ASVAB Forms 23/24.

RDT&E BUDGET JUSTIFICATION SHEET (R-2 Exhibit)								DATE: FEBRUARY 1998	
APPROPRIATION/BUDGET ACTIVITY: 0400/06					PROGRAM ELEMENT (PE) NAME & NUMBER: Defense Human Resource Activity 0605803S				
COST (In Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	COST TO COMPLETE	TOTAL COST
0003 DoD Enlistment Processing and Testing	1,102	1,711	1,757	1,773	1,857	1,868	1,966	Continuing	Continuing

FY 1998 Plans (1,711)

DoD Enlistment Testing Program (ETP)

- o Implement computerized and paper & pencil forms.
- o Implement new ASVAB test order.
- o Implement new ETP norms.

DoD Student Testing Program (STP)

- o Implement new ASVAB 23/24 Career Exploration Program, i.e., ASVAB 18/19 Counselor Manual, Exploring Careers: The ASVAB Student Workbook and Technical Manual for the ASVAB 18/19 Career Exploration Program.
- o Implement new ASVAB test order.
- o Implement new STP norms.

FY 1999 Plans (1,757)

Enlistment Testing Program (ETP)

- o Continue development of new computerized and paper-and-pencil ASVAB forms.
- o Continue development of on-line calibration procedures.
- o Prepare for Implementation of new normative information.
- o Continue development of procedures to detect compromise and item parameter drift on computer adaptive tests.

Student Testing Program (STP)

- o Continue development of new ASVAB Career Exploration Program material and documents.
- o Continue revision of *Military Careers.*
- o Continue development of new ASVAB forms.
- o Prepare for implementation of new normative information.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 7	Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY

COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
TOTAL PROGRAM ELEMENT	6.101	26.013	26.231	6.755	6.610	7.170	7.175	Cont	Cont
#1: Combat Rations	1.752	1.975	1.900	1.900	1.858	1.800	1.800	Cont	Cont
#2: Apparel Research Network	2.597	2.690	2.877	2.600	2.581	1.900	2.000	Cont	Cont
#3: American Metalcasting Consortium (AMC)	1.752	3.773	2.154	2.255	2.171	3.470	3.375	Cont	Cont
#4: Rapid Acquisition of Manufactured Parts (RAMP)	0.000	7.900	8.000	0.000	0.000	0.000	0.000	Cont	Cont
#5: CastingEmissions ReductionProgram(CERP)	0.000	9.675	11.300	0.000	0.000	0.000	0.000	Cont	Cont

A. Mission Description & Budget Item Justification:
Manufacturing Technology (Man Tech) reduces costs and lead times, and increases quality, by developing and applying advanced manufacturing technology. DLA ManTech includes Combat Rations Network for Technology Implementation (CORANET), Apparel Research Network (ARN) American Metalcasting Consortium (AMC).
CORANET assures combat ration availability of specified variety, quality and affordability to the Components through commercial-military integration, ration processing and packaging research, and menu variety and producibility improvement. CORANET is part of the Joint Director of Laboratories Advanced Industrial Practices Strategic Plan.

ARN concentrates on achieving customer driven uniform manufacturing by establishing electronic links among all participants in the supply chain from the end user to the fabric supplier. The program is part of the Joint Director Of Laboratories Advanced Industrial Practices Strategic Plan.

AMC reduces the lead time of weapons system metal castings with Castings Advanced Systems Technology - Integration Teams (CAST-IT), by deploying advanced design and acquisition processes, and by improving foundry processes. AMC is part of the Joint Director of Laboratories Metals Processing Strategic Plan.

B. Program Change Summary:

COST IN MILLIONS

	FY 97	FY 98	FY 99
President's Budget Submission	6.101	8.720	8.732
Adjustment to Appropriated Value	—	+17.293	+17.499
Current Budget Submission	6.101	26.013	26.231

Change Summary Explanation: FY 98 reflects a $4.0 million congressional add for RAMP, a $3.9 million internal realignment to fully fund RAMP, a $10 million congressional add for CERP, and undistributed reductions. FY 99 reflects an increase of $8 million for RAMP and $11.3 million for CERP offset by the termination of the machine tool technology program and inflation adjustment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE: FEBRUARY 1998			
APPROPRIATION/BUDGET ACTIVITY: 0400/07 RDT&E Defense Wide/budget Activity 7						Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY			
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY03	COST TO COMP	TOTAL
#1: COMBAT RATIONS	1.752	1.975	1.900	1.900	1.858	1.800	1.800	CONT	CONTINUES

COMBAT RATIONS

A. Mission Description and Justification:

DLA buys about $150 million worth of Combat Rations annually. The product has been military unique, with a limited industrial base capable of producing variety and quantities needed for surge, and dependent on orders from Government to remain viable. This initiative will ensure that DLA will have the industrial to base continue to support warfighters with combat rations properly. The program, Partners develop new technology for implementation in their plants, after demonstrations conducted at Rutgers University, unifying the civilian and military manufacturing processes to expand the base.

(U) Program Accomplishments and Plans:

(U) FY 1997:

* Reviewed present and future Gov't needs witch produces, identical technology opportunities awards for Combat Rations Network - partners to address cost, quality of MRE rations.
* Continue to examine industrial base opportunities with parteners.
* Continue to assist implementation into Combat Rations industrial base.
* Implement vendor quality management system at DPSC, to be part of FY 98 contracts.

(U) FY 1998:

* Update strategic plans and business case for CORANET.
* Continue work on technology implementation.

B. Program Change Summary: Restructure to emphasize implementation of an existing program.

COST IN MILLIONS

	FY 97	FY 98	FY 99
President's Budget Submission	1.752	2.040	1.900
Adjustment to Appropriated Value	----	-.065	----
Current Budget Submission	1.752	1.975	1.900

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: 0400/07 RDT&E Defense Wide/Budget Activity 7				Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY00	FY 01	FY 02	FY 03	TOTAL
#1: COMBAT RATIONS	1.752	1.975	1.900	1.900	1.858	1.800	1.800	CONTINUES

C. Other Program Funding Summary: FY98 reflects - $65 thousand net congressional/PBD reductions.
- None.
- Related Programs: None.

D. Schedule Profile:

The Combat Ration Network for Technology Implementation (CORANET) is the ManTech program managed at DLA Headquarters, through contracts from the Defense personnel Support Center.

	97				98				99			
CORANET Protect Areas Identified	1	2	3	4	1	2	3	4	1	2	3	4
Multiple Unit Leak detection of MRE Pouches	X	X	X	X	X	X						
Machine Visition Inspection of Combat Rations	X	X	X	X	X	X	X	X	X	X	X	X
Polymeric Tray Seal Integrity Testing				X	X	X	X	X	X	X		
Implementation of CIM Process Modules				X	X	X	X	X	X	X	X	X
Engineered Material Handling - Placeable Items				X	X	X	X	X	X	X	X	X
Quality/Process Monitoring Sensors in CIM				X	X	X	X	X	X	X	X	X
Horizontal Form/Fill/Seal Ration Production				X	X	X	X	X	X	X	X	X

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide/Budget Activity 7	R-1 ITEM NOMENCLATURE NUMBER/PROJECT NUMBER 0708011S MANUFACTURING TECHNOLOGY

A. Project Cost Breakdown

Combat Rations

Project Cost Categories	FY97	FY98	FY99
a. Manufacturing Process Research, Development and Implementation	1.752	1.975	1.900

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide/Budget Activity 7	R-1 ITEM NOMENCLATURE NUMBER/PROJECT NUMBER 0708011S MANUFACTURING TECHNOLOGY

B. Budget Acquistion History and Planning Information
Performing Organizations

Contractor or Government Performing Activity	Contractor Method/Type Or Funding Vehicle	Award or Obligation Date	Performing Project Activity EAC	FY97	FY98	FY99	Budget to Complete	Total Program
Rutgers	Cost	6/10/96	N/A	1.752	1.975	1.900	Cont	Cont
Ohio State	Cost	7/3/96						
Texas A&M	Cost	7/11/96						
Wash State	Cost	7/3/96						
IITR (NCFST)	Cost	7/11/96						
Government Furnished Property N/A								
R&DA for MIL Rations	Cost	7/24/96						
Right Away Foods	Cost	7/11/96						
Stable Foods	Cost	8/14/96						
Ameriqual Foods	Cost	7/22/96						
Sopakco	Cost	7/22/96						
Sterling Foods	Cost	7/22/96						
Land O'Frost Foods	Cost	7/22/96						

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE: FEBRUARY 1998					
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 7				Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY					
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#2: Apparel Research Network	2.597	2.690	2.877	2.600	2.581	1.900	2.00	Cont	Cont

Apparel Research Network (ARN)

A. Mission Description & Budget Item Justification

The Department of Defense, through the Defense Logistics Agency, purchases an average of $1 billion of clothing and textile items per year. Our current leadtime is up to 15 months and our current inventory acquisition value is over $2 billion. ARN is a Manufacturing Technology program to improve the responsiveness of the industrial base that supplies the clothing items to the Military Services. It enables the small business oriented apparel producers to access state-of-the-art technologies through its R&D and technology transfer mechanism. The goal of this program is to reduce the average apparel leadtime from 6 months to 6 weeks and to reduce the inventory carrying costs by 50%. A 50% reduction in carrying cost would reduce the cost to the customer by 20%.

(U) Program Accomplishments and Plans:

(U) FY1997:

Completed program road map and business case.

Successful implementations at Defense Apparel Manufacturer sites: a. Automation for BDU Pocket Flap Fusing operation
b. Apparel Information Management System for automating military specific processes.
c. Modular Manufacturing Modules for better worker morale, lower Work-In-Process level and better quality product.

Developed Balanced Inventory Flow Replenishment System for defense manufacturer's to accurately predict future demand and to meet quick response goals.

(U) FY 1998

Implement Electronic Ordering Forms via Internet for special measurement orders.

Field test 3-D Whole Body Scanning for Customer Driven Uniform Manufacture at the Marine Corps Recruit Training Center in San Diego, CA.

Conduct Virtual Prime Vendor demonstrations (Clemson and Cal Poly) that provide supply chain asset visibility, automated electronic ordering process and inventory forecasting capabilities. The initial objective is to assist the two Marine Corps Recruit Training Centers (Parris Island and San Diego) to minimize retail inventories and ultimately to assist DLA ICP (DPSC) to reduce system-wide wholesale inventories.

B. Program Change Summary:

COST IN MILLIONS

	FY 97	FY 98	FY 99
President's Budget Submission	2597	2.780	2.877
Adjustment to Appropriated Value	----	-.090	----
Current Budget Submission	2.597	2.690	2.877

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 7					Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY02	FY03	COST TO COMP	TOTAL
#2: Apparel Research Network	2.597	2.690	2.877	2.600	2.581	1.900	2.000	Cont	Cont

C. Other Program Funding Summary: FY 98 reflects - $90 thousand net congressional/PBD reductions.
- None.
- Related Programs:

D. Schedule Profile:

	97						98			99		
	1	2	3	4	1	2	3	4	1	2	3	4
Operate Clemson Demo	x	x	x	x	x	x	x	x	x	x	x	x
Operate CalPoly Demo	x	x	x	x	x	x	x	x	x	x	x	x
Design for Manufacturing/Alteration	x	x	x	x	x	x	x	x				
Advanced Pre-Production Development	x	x										
Advanced Production Development	x	x	x									
Advanced Distribution Development	x	x	x	x	x	x						
Special Measurement Processes	x	x	x	x	x	x	x					

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide/Budget Activity 7	R-1 ITEM NOMENCLATURE NUMBER/PROJECT NUMBER 0708011S MANUFACTURING TECHNOLOGY

A. Project Cost Breakdown

Apparel Research Network

Project Cost Categories	FY 97	FY98	FY99
	2.597	2.690	2.877
a. Manufacturing Process Research and Development			

RDT&PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide/Budget Activity 7	R-1 ITEM NOMENCLATURE NUMBER/PROJECT NUMBER 0708011S MANUFACTURING TECHNOLOGY

B. Budget Acquistion History and Planning Information
Performing Organizations

Contractor or Government Performing Activity	Contractor Method/Type Or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Budget FY97	Budget FY 98	Budget FY 99	Budget to Complete
					2.597	2.690	2.877	Continues
Anthropology Research Project, Inc.	Cost	12/09/94	N/A	N/A				
Auburn University		01/23/95						
Beecher Research Company		01/23/95	N/A	N/A				
CAL POLY University - Pomona		12/09/94						
Charles Gilbert Associates, Inc.		03/16/95						
Clarity, Inc.		02/17/95						
Clemson University		12/09/94						
Philadelphia College of Tex &Sci		03/16/95						
Rensselaer Polytechnic Institute		12/09/94						
University of Southwestern Louisana		02/09/94						
Wizdom Systems, Inc.		02/16/95						
Cyberware		05/10/95						
EDI Integration		12/13/94						
Georgia Institute of Technology		12/09/94						
Haas Tailoring Company		02/27/95						
Jet Sew Technologies		12/09/94						
NCSU		12/23/94						
Southern Tech		12/09/94						
Ohio University		01/12/95						
Univ-Wisconsin, Stout		12/20/94						
Government Furnished Property	N/A							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 7					Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#3: American Metalcasting Consortium (AMC)	1.752	3.773	2.154	2.255	2.171	3.470	3.375	Cont.	Cont

A. AMERICAN METALCASTING CONSORTIUM (AMC)

Long lead time weapon system spares are often metal castings. AMC reduces lead time with Castings Advanced Systems Technology - Integration Teams (CAST-IT), by deploying advanced design and acquisition processes, and by improving foundry processes.

CAST-IT teams have worked with DLA Supply Centers and Military Services and Weapons Systems Primes and Subs to demonstrated $5.1M annual savings, and 50% or more lead time savings, on ship to ship refueling sockets, 120mm mortar, C141 rod guide, M1 breech opening handle, M284 carrier housing, BAT missile fuselage, Bradley Commander's Independant Viewer, MEP 16 generator, and other parts.

Advanced Metalcasting design and acquisition processes have been deployed at Army Benet Labs and Watervliet Arsenal, and are being deployed for DSCR and DSCC. This part of the proram upgrades the technical skills of engineering, supply, quality and procurement personnel so that lead time problems are prevented.

Foundry processes are being improved through research at Pennsylvania State University (improved dimensional control), University of Alabama - Birmingham (machining reject reduction and aluminum reliability), University of Tennessee (high alloy casting weldability), Ohio State University (machining reject reduction , computer visualization, short run processes, and dimensional control), Northwestern University (fast free form fabrication) and University of Michigan (copper alloys).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE: FEBRUARY 1998	
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 7								Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY	
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#3:AMERICAN METALCASTING (AMC)	1.752	3.773	2.154	2.255	2.171	3.470	3.375	Cont.	Cont

B. Program Change Summary:

COST IN MILLIONS

	FY 97	FY 98	FY 99
President's Budget Submission	1.752	3.900	3.955
Adjustment to Appropriated Value	----	-.127	-1.801
Current Budget Submission	1.752	3.773	2.154

Change Summary Explanation:
Total PE was reduced in FY 99 by 1.801, which resulted in the termination of the machine tool technology program.

C. Other Program Funding Summary: No funding dependencies. FY98 reflects - $127 thousand congressional/PBD reductions.

D. Schedule Profile:

	FY 97	FY 98	FY99
Quarters	1 2 3 4	1 2 3 4	1 2 3 4
CAST-IT	x x x x	x x x x	x x x x
Advanced Design & Acq.	x x x x	x x x x	x x x x
Foundry Research	x x x x	x x x x	x x x x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide/Budget Activity 7	R-1 ITEM NOMENCLATURE NUMBER/PROJECT NUMBER 0708011S MANUFACTURING TECHNOLOGY

A. Project Cost Breakdown

Metalcasting Manufacturing Process Research and Development	FY 97 1.752	FY 98 3.773	FY 99 2.154

B. Budget Acquisition History and Planning Information

Performing Organizations

Contractor	Contract Type	Award	Performing Project	FY 97	FY98	FY99
SCRA	Cost Share	10/26/94	N/A	1.752	3.773	2.154

Government Furnished Property: None

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE: FEBRUARY 1998					
APPROPRIATION/BUDGET ACTIVITY: 0400/07 RDT&E Defense Wide/budget Activity 7				Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY					
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#4: Rapid Acquisition of Manufactured Parts (RAMP)		7.900	8.000						Continues

RAPID ACQUISITION OF MANUFACTURED PARTS (RAMP)

A. Mission Description and Justification:

(U) RAMP develops, prototypes and demonstrates the capability for data-driven, just-in-time, low volume manufacturing of hard to obtain parts. RAMP has demonstrated the capability to reduce the total lead time for hard to find parts from over 400 days to less than 30 days. This is accomplished with the application of advanced design and manufacturing technology. RAMP leads in the development of Standard for Exchange Product (STEP) Data protocols and the application and development of tools that use STEP data to reduce lead times. Small parts manufacturing is vital to DoD's spares and new acquisition business since the DoD rarely buys items in large quantities.

(U) Program Accomplishments and Plans:

(U) FY 1997:

* Received a CALS implementor award for encouraging the acceleration of low end CAD software capable of using STEP files. This is vital to enabling small and medium manufacturers participate in making DoD items.
* Advanced STEP Application Protocol 224 to Interim Standard Status.
* Produced over 75 end items for end users resulting in significant reductions in leadtime.
* Achieved over $40M in cost avoidance.

(U) FY 1998:

* Transition the program from the Navy to DLA Manufacturing Technology Program.
* Continue to develop and test STEP standards for use by DoD
* Demonstrate an integrated repair/manufacturing system

B. Program Change Summary: Program was transferred from Navy to DLA beginning in FY 1998.

COST IN MILLIONS

	FY 97	FY 98	FY 99
President's Budget Submission	----	0.0	8.000
Adjustment to Appropriated Value	----	+7.900	----
Current Budget Submission	----	7.900	8.000

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE: FEBRUARY 1998				
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 7					Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY				
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#4 Rapid Acquisition of Manufactured Parts (RAMP)		7.900	8.000					Cont.	Cont

B. Program Change Summary:
COST IN MILLIONS

	FY 97	FY 98	FY 99
President's Budget Submission			8.000
Adjustment to Appropriated Value	----	+7.900	
Current Budget Submission			8.000

Change Summary Explanation:
The Congress added $4.000 to DLA's FY 98 budget for RAMP and the Department will realign $3.9 million to fully fund the program.

C. Other Program Funding Summary: No funding dependencies.

D. Schedule Profile:

	Quarters	FY 97 1 2 3 4	FY 98 1 2 3 4	FY99 1 2 3 4
Advanced Manufacturing			xxxx	xxxx
Product Data Engineering.			xxxx	xxxx
Electronic Commerce			xxxx	xxxx

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide/Budget Activity 7	R-1 ITEM NOMENCLATURE NUMBER/PROJECT NUMBER 0708011S MANUFACTURING TECHNOLOGY

A. Project Cost Breakdown
#4 Rapid Acquisition of Manufactured Parts (RAMP)

	FY 97	FY 98	FY 99
Manufacturing Process Research and Development	-----	7.900	8.000

B. Budget Acquisition History and Planning Information
Performing Organizations

Contractor	Contract Type	Award	Performing Project	FY 97	FY98	FY99
SCRA	Cost	10/26/94	N/A		$7.900	$8.000

Government Furnished Property: Unknown at this time. Will be determined during the transition.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE: FEBRUARY 1998					
APPROPRIATION/BUDGET ACTIVITY: 0400/07 RDT&E Defense Wide/budget Activity 7				Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY					
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	COST TO COMP	TOTAL
#5 Casting Emission Reduction Program (CERP)	00	9.675	11.3						20.975

CASTING EMISSION REDUCTION PROGRAM (CERP)

A. Mission Description and Justification:

During the last decade, the number of US sources for metal castings has shrunk by over one fourth due in large part to the increased environmental regulations. With an overall DoD acquisition of approximately $2.3 billion in military specific metal castings, and a industry continuing to shrink or move off-shore, it is critical to continued supply to find environmental solutions which allow the industry to remain domestic and cost competitive. The Casting Emission Reduction Program is a program who's mission is to find materials and processes which allow industry and organic DoD foundries to meet stringent emission requirements and still provide cost competitive metal castings. Participants include McClellan AFB, the USCAR (comprised of the three U.S. auto makers), U.S. EPA, California Air Resources Board, and the American Foundrymen's Society (AFS).

Program Accomplishments and Plans:

FY 1997: N/A

FY 1998:

- Complete installation and startup of iron metal casting pilot plant
- Develop baseline data for standard test materials and environment
- Install and validate continuous emission monitoring system
- Complete the design, program and integration of data analysis and reporting system
- Acquire, install and validate aluminum green sand testing capability
- Research real-time particulate matter measurement Phase I
- Install and validate real-time particulate matter measurement devices Phase I
- Research sand morphology and interaction with non hazardous binder products Phase I
- Operate and support testing measurement and data reporting
- Operate and support pilot plant for testing for FY 98
- Develop and deliver low level measurement instrumentation Phase I
- Develop and deliver finite element solidification modeling tools Phase I
- Develop operating procedures and documentation for pilot plant

FY 1999:

- Acquire, install and test sand reclamation system
- Acquire, install and test lost foam process for iron and aluminum
- Research real-time particulate matter measurement Phase II
- Install and validate real-time particulate matter measurement devices Phase II
- Research sand morphology and interaction with non hazardous binder products Phase II
- Improve accuracy of continuous emission monitoring systems
- Operate and support testing measurement and data reporting Phase II
- Continue operation and support for pilot plant
- Develop and deliver low level measurement instrumentation Phase II

B. Program Change Summary: DLA resumed responsibility of the program in FY 98

COST IN MILLIONS

	FY 97	FY 98	FY 99
President's Budget Submission	$0	$0	$0
Adjustment to Appropriated Value	$0	9.675	11.3
Current Budget Submission	$0	$9.675	$11.3

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE: FEBRUARY 1998	
APPROPRIATION/BUDGET ACTIVITY: RDT&E Defense Wide/Budget Activity 7								Program Element (PE) Name & No 0708011S MANUFACTURING TECHNOLOGY	
COST (MILLIONS)	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03	Cost to Comp	TOTAL
#5 Casting Emission Reduction Program (CERP)	00	9.675	11.3						20.975

C. Other Program Funding Summary: FY 98 funding reflects net PBD Congressional Reduction.
- None
- Related Programs: None

D. Schedule Profile:
The Casting Emission Reduction Program is a ManTech program managed at DLA Headquarters, through Defense personnel at McClellan AFB.

	FY 97	FY 98	FY 99
CERP Project Areas Identified:	1 2 3 4	1 2 3 4	1 2 3 4
Office Operations	x x x x	x x x x	x x x x
Design Foundry		x x	x x
Emissions Measurement	x x x x	x x x x	x x x x
Prototype Foundry	x x x x	x x x x	x x x x
Continuous Emissions Monitoring	x x x x	x x x x	x x x x
Modeling	x x x x	x x x x	x x x x
Foundry Operations	x x x x	x x x x	x x x x

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E Defense Wide/Budget Activity 7	R-1 ITEM NOMENCLATURE NUMBER/PROJECT NUMBER 0708011S MANUFACTURING TECHNOLOGY

A. Project Cost Breakdown
#5 Casting Emission Reduction Program

Project Cost Categories	FY 97	FY 98	FY 99
	N/A	$9.675	$11.3

B. Budget Acquisition History and Planning Information
Proposed Performing Organizations

Contractor Government Program Performing	Contractor Method/Type Or Funding	Award Obligation Date Projected	Performing Project Activity EAC	FY 97	FY 98	FY 99	Budget to Complete	Total
McClellan AFB	Cost	On-going	N/A	$0	$9.675	$11.3	Cont.	Cont.
GSA	Cost	On-going	"					
TSI	Cost	1/26/98	"					
Radian	Cost	On-going	"					
UC Davis	Cost	2/02/98	N/A					
Other Contract Support		TBD						

Government Furnished Property: Unknown at this time. Will be determined during the transition.

DEFENSE SPECIAL WEAPONS AGENCY

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Defense Special Weapons Agency
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
19	0602715H	Defense Special Weapons Agency	2	186,726	203,642		U
		Applied Research		186,726	203,642		
35	0603711H	Verification Technology Demonstration	3	27,785	80,908		U
		Advanced Technology Development		27,785	80,908		
Total		Defense Special Weapons Agency		214,511	284,550		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE February 1998			
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2					R-1 ITEM NOMENCLATURE Defense Special Weapons Agency; 0602715H			
COST (In Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete
Total 0602715BR Cost	189.2	203.7	0.0	0.0	0.0	0.0	0.0	Continuing
Project AB Test & Simulation Technology	46.3	51.9	0.0	0.0	0.0	0.0	0.0	Continuing
Project AC Weapon Systems Lethality	37.6	41.8	0.0	0.0	0.0	0.0	0.0	Continuing
Project AE Weapon Safety & Operational Support	25.1	28.8	0.0	0.0	0.0	0.0	0.0	Continuing
Project AF Weapon System Operability	40.5	43.9	0.0	0.0	0.0	0.0	0.0	Continuing
Project AG Scientific Computations & Information Systems	17.1	19.2	0.0	0.0	0.0	0.0	0.0	Continuing
Project AI Hard Target Tunnel Defeat and NTS Sustainment	5.1	10.7	0.0	0.0	0.0	0.0	0.0	Continuing
Project AL Classified Program	3.0	2.4	0.0	0.0	0.0	0.0	0.0	Continuing
Project AN Thermionics	3.0	0.0	0.0	0.0	0.0	0.0	0.0	Complete
Project AP Antiterrorism/Counterterrorism	2.5	0.0	0.0	0.0	0.0	0.0	0.0	Complete
Project AQ Deep Digger	2.0	0.0	0.0	0.0	0.0	0.0	0.0	Complete
Project AR Johnston Atoll Remediation	2.0	0.0	0.0	0.0	0.0	0.0	0.0	Complete
Project AY Bioenvironmental Hazards Research	5.0	5.0	0.0	0.0	0.0	0.0	0.0	Complete

A. Mission Description and Budget Item Justification

This program develops the technology base needed to support national security issues relevant to nuclear and other advanced weapons and force application technologies. Program initiatives include the development, upgrade, and maintenance of advanced nuclear weapons effects simulators to address weapon systems operability issues; conventional weapon targeting and strike planning tools for regional contingencies; battle damage prediction/assessment of conventional strikes against fixed hardened facilities; and predictive models for

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	R-1 ITEM NOMENCLATURE Defense Special Weapons Agency; 0602715H

Mission Description and Budget Item Justification (cont'd)

dispersion and transport of hazardous particles generated by attacks of Weapons of Mass Destruction (WMD) facilities. These projects also serve to support sustainment of a core nuclear competence in the national industrial base. Efforts encompass:

-Support for national security policy implementation.
-Support to CINCs in nuclear force structure, logistics, operations and stockpile programs.
-Quantitative assessments of nuclear weapons systems with development and maintenance of nuclear weapons system safety databases.
-Development, upgrade, and operation of simulators (radiation, blast, thermal, radio frequency propagation and optical/infrared background effects) to characterize operability of military systems during and after exposure to nuclear disturbed environments.
-Physical and functional characterization of hardened underground structure designs and associated vulnerabilities.
-Determination of nuclear and conventional weapons effectiveness against fixed targets. Emphasis is on targeting technical support, hard target kill criteria, and damage assessment methodologies.
-Utilization of weapons effects information to support development of adaptive targeting methodologies.
-Support of high-performance computing capability to maintain and upgrade the Agency's predictive codes in radiation hydrodynamics, structural dynamics, and electromagnetic propagation supporting nuclear and conventional weapon system lethality, operability, and safety assessments.

The 6.2 programs under this Program Element (0602715H) are divided into twelve projects. It should be noted that information concerning Project AL is classified per DoD Directive 0-5205.7, Para B.2.f.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	R-1 ITEM NOMENCLATURE Defense Special Weapons Agency; 0602715H

Mission Description and Budget Item Justification (cont'd)

The November 1997 Defense Reform Initiative (DRI) directed the establishment of a Defense Threat Reduction and Treaty Compliance Agency effective 1 October 1998. As a result of the DRI, resources for FY 1999 and out which were previously addressed in this PE have been transferred to PE 0602715BR (WMD Related Technologies).

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	R-1 ITEM NOMENCLATURE Defense Special Weapons Agency; 0602715H

Project AB - Test & Simulation Technology - Development of effective, survivable, and affordable weapon systems requires a robust testing and simulation capability to support acquisition managers and decision makers. This project develops, provides and maintains unique DoD test and simulation facilities and enabling technologies that are used by the Defense Agencies, the Services and other federal agencies to evaluate the impact of hostile environments from conventional, nuclear and other special weapons on military or civilian systems and targets. These facilities provide blast, thermal, electromagnetic pulse, ionizing radiation and radio frequency propagation environments and testbeds to support DoD and national test requirements. This project leverages fifty years of testing expertise to investigate weapons effects and target response to a spectrum of hostile environments that could be created by proliferant nations or terrorist organizations with access to advanced conventional weapons or weapons of mass destruction (nuclear, biological and chemical).

The project includes the upgrade of existing simulators to extend their utility and life, the decommissioning of obsolete simulators, and the development of new simulators, when required, to compensate as much as possible for the lack of underground testing (UGT). Additionally, it provides the innovative, enabling technologies that make simulator enhancements and new facilities technically feasible and cost-effective. Specific programs in this project include: based on user test requirements, maintain two existing test centers - one at PRIMEX Physics International in San Leandro, California and one at Arnold Engineering Development Center (AEDC) in Tullahoma, Tennessee, including the development, construction and checkout of the new DECADE x-ray facility; development of technologies to provide enhanced radiation sources on the DECADE simulator; development of communications and radar propagation effects simulators, and infrared and optical scene generators; partnership with Sandia National Laboratories (DOE) to develop technologies in energy storage, power flow, plasma switches, debris shields, and radiation sources that are applicable to stockpile stewardship and DoD strategic systems sustainment; characterization, optimization and operation of the Large Blast/Thermal Simulator (LB/TS) at White Sands Missile Range (WSMR), including the demonstration of a non-ideal airblast simulation capability; operation and maintenance of the ARES electromagnetic pulse (EMP) facility at Kirtland AFB; and target defeat assessments for precision-guided and special weapons against Weapons of Mass Destruction (WMD) related targets.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	R-1 ITEM NOMENCLATURE Defense Special Weapons Agency; 0602715H

Project AB - Test & Simulation Technology (cont'd)

The project provides test beds for full- and sub-scale tests that focus on weapon-target interaction with fixed hardened facilities to include hardened aboveground bunkers, cut-and-cover facilities and deep underground tunnels. This effort supports the Services' requirements for hard target defeat testing and emphasizes teaming with the Services to assess weapon-target interaction of existing and developmental weapon systems. Specific activities include test bed design and construction, instrumentation and data collection, test coordination and execution, and post-test analysis and documentation.

This project relies on hardening and simulation technologies [Testable Hardware and Aboveground Testing(AGT)/UGT Correlation] funded under Project AF and supports the evaluation of weapons lethality accomplished in Projects AC and AI. Funded programs support JCS Joint Warfighting Capabilities: Control Space, Counterproliferation, Discriminate Attack, Global Reach and Situational Awareness, and also provide support to STRATCOM, EUCOM, USFK (PACOM) and ACOM.

FY 1997 Accomplishments

Test & Simulation ($19,365K)

Reactivated the Magnetic Flyer Material response impact facility.
Completed Comprehensive AGT Radiation Test Center environment correlation.
Developed longer-area, debris-free cold test environment for weapon system material testing.
Completed development and demonstration of on-line remote simulator technology and support hardware to test customers' sites.
Continued operation of Tri-Service test facility; evaluated advanced thermal test needs/incorporated fidelity improvements.
Tested Navy ship decking and 1/4- scale masts, Air Force satellite antenna mast (SPACECOM), and an Israeli subscale structure.
Continued testing of vehicle types identified by the U.S. Army Nuclear and Chemical Agency.
Developed Non-Ideal Airblast (NIAB) simulation with LBTS.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	R-1 ITEM NOMENCLATURE Defense Special Weapons Agency; 0602715H

Project AB - Test & Simulation Technology (cont'd)

Weapon/Target Interaction ($5,810K)

- Completed site survey, environmental assessment and design for tunnel defeat testbed.
- Supported test requirements by providing utilities and maintaining the construction capability infrastructure needed for the counterproliferation (CP), hard target defeat (HTD), and Hard and Deeply Buried Target (HDBT) programs.
- Constructed industrial targets for the assessment of WMD Component damage, target response, and collateral effects for conventional weapons and enhanced payloads.

Radiation Simulators ($21,102K)

- Continued to develop signature requirements and munitions effectiveness assessment for hard target defeat.
- Continued LB/TS operation and maintenance; conducted blast/thermal operational testing.
- Began DECADE Quad bremsstrahlung radiation source installation.
- Demonstrated larger-area (ten times increase) debris shields and bremsstrahlung spectral diagnostics.
- Optimized DECADE module large-area bremsstrahlung (LAB) performance.
- Began R&D for high-fluence soft x-rays and high-dose and dose-rate bremsstrahlung sources on the DECADE Quad.
- Installed low-voltage, warm x-ray source, fast-risetime hot x-ray source, and mixed gas cold x-ray source on Double EAGLE at PRIMEX Physics International, and developed gamma/beams capability for AEDC.
- Began development of a portable, compact x-ray simulator for high-fidelity testing.
- Continued to operate radiation simulators at PRIMEX Physics International and began a Modular Bremsstrahlung Source (MBS) operation at AEDC.
- Closed Phoenix and Casino/Tactical Gamma Simulator (TAGS) at the Naval Surface Warfare Center; completed physical closure of Blackjack simulators.
- Provided high explosive (HE) simulation infrastructure and test support, and maintained Permanent High Explosives Test Site (PHETS) facility at WSMR and Chestnut Site at Kirtland AFB.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2	R-1 ITEM NOMENCLATURE Defense Special Weapons Agency; 0602715H

Project AB - Test & Simulation Technology (cont'd)

Completed Radar Nuclear Effects Corruption and Simulator (RNECS) development and began initial operational tests; completed Advanced Channel Simulator (ACS) development and began initial operational tests; evaluated advanced sensor focal planes in Nuclear IR Clutter Simulator (NICS); provided advanced SATCOM Simulation Test Support. Continued communication/radar atmospheric effects simulator participation in operability assessment/warfighting exercises, and evaluated Upgraded Early Warning Radar (UEWR) operability for National Missile Defense (NMD).

Delivered Nuclear Optical Dynamic Display System (NODDS) chips to Navy for advanced radar and sensor fusion for Maverick missile evaluations.

FY 1998 Plans

Test & Simulation ($19,902K)

Continue to provide HE simulation infrastructure and test support, and maintain PHETS facility at WSMR and Chestnut Site at Kirtland AFB.

Complete RNECS development for Theater Missile Defense (TMD) and begin initial operational tests; complete ACS development and begin initial operational tests; evaluate advanced sensor focal planes in NICS; provide advanced SATCOM Simulation Test Support to assess TMD architecture communications link operability; continue communication/radar atmospheric effects simulator participation in operability assessment/warfighting exercises; and evaluate TMD Ground-Based Radar (GBR) operability.

Continue advanced SATCOM Simulation Test Support to MILSATCOM and Universal Modem.

Evaluate off-the-shelf technology for improvements in thermal and pressure diagnostics capabilities of LB/TS. Test three Navy ship deckings, one United Kingdom communications shelter and continue testing of Israeli subscale structure.

Weapon/Target Interaction ($7,993K)

Awarded contract to develop and validate end-to-end targeting capability for conventional and nuclear weapons against tunnels.

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Project AB - Test & Simulation Technology (cont'd)

Continue to construct and rehab test target facilities, provide utilities, maintain the construction infrastructure, and execute tests needed for the CP, HTD, and HDBT programs. Complete tunnel testbed excavation.

Continue to develop signature requirements and munitions effectiveness assessment for hard target defeat.

Continue construction of industrial targets for the assessment of WMD Component damage, target response, and collateral effects for conventional weapons and enhanced payloads.

Radiation Simulators ($24,047K)

Complete bremsstrahlung installation and begin optimizing the LAB DECADE Quad simulator.

Develop improved fidelity source for Nuclear Weapons Effects (NWE) testing on the DECADE simulator, plasma imaging and current diagnostics, and high-current, long-time implosion soft x-ray sources.

Improve radiation sources and instrumentation on the DECADE simulator.

Begin very large ($500cm^2$) debris shield development for cold x-ray testing.

Continue to operate Double-EAGLE, Pithon, MBS, Decade Modules 1 and 2 (DM1/DM2) and ACE-4 simulators in support of customer testing and DECADE R&D.

Begin closure of the High Power Microwave Simulator and Fast Rise EMP Simulator.

Continue development of a portable, compact, high-fidelity x-ray simulator.

Continue advanced, high-fluence, soft x-ray and high-dose and dose-rate bremsstrahlung development for the DECADE Quad.

Develop interim, high-fluence, low-endpoint bremsstrahlung source for Double EAGLE for System-Generated Electromagnetic Pulse (SGEMP) testing.

Develop high-dose capability to support testing of Strategic System Weapons.

Replace aging and obsolete instrumentation and diagnostics at test and R&D centers.

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Project AC - Weapons Systems Lethality - Building upon core Agency nuclear competencies in nuclear effects and target response, this project addresses the lethality of the full spectrum of weapons, including nuclear and advanced conventional weapons, against the target base of today and tomorrow -- ranging from ultra-hard underground facilities to above ground, unhardened surface facilities and other special facilities that may be associated with the production, storage or deployment of weapons of mass destruction. Helping to maintain the continued effectiveness of the nuclear deterrent, this project also seeks to provide decision makers and warfighters expanded conventional weapon options against well-protected, high-priority targets. The program relies extensively on advanced numerical methods, as well as laboratory scale experiments, intermediate and full-scale field tests and operational test data to quantify functional and physical damage criteria and collateral effects. Project results will be provided to operational planners through analytic prediction tools, multimedia hypertext databases, and technical manuals. Central to this support is an automated expert system to assist in pre-strike target planning and post-strike battle damage assessment. Technology developed in this project will also enable civil agencies to assess engineering designs to mitigate direct and collateral damage from terrorist attacks such as occurred at the Oklahoma City Federal Building and Khobar towers attack in Saudia Arabia. Additionally, the technology developed directly supports force protection issues, operations other than war and DoD support to civil authority.

On a broader scale, improvements in weapon effects and target response codes will be used to upgrade and expand physics-based modeling and simulation. These improved codes include: coupled finite difference-finite element codes, structure-medium interaction codes, groundshock propagation codes suitable for jointed and/or layered media and high resolution codes capable of predicting the transport of hazardous aerosol clouds over complex terrain. The understanding of weapon-target interaction resulting from this project will support the generation of weapon system requirements for the changing worldwide target base and provide a quantitative basis for planning contingency operations against high value targets. It will also improve the understanding of target/weapon interactions and their consequences for battle damage prediction and assessment. This project also includes the Electro-Thermal Chemical (ETC) gun advanced technology and projectile lifting body programs per Memorandum of Agreement (MOA) with the Navy; ETC gun technologies for the direct-fire applications, per MOA with the Army; and the development of high power electromagnetic source technology for warfighter applications.

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Project AC - Weapons Systems Lethality (cont'd)

Project AB, Test & Simulation Technology, provides the testbeds to support weapons lethality tests in this project. The computer tools and databases developed under this project support the execution of Project AI. This project supports the following JCS Joint Warfighting Capabilities: Counterproliferation, Discriminate Attack, Global Reach, and the Hard Target Defeat Program.

FY 1997 Accomplishments

Nuclear Weapons Effects Phenomenology ($3,716K)

- Developed concepts for demonstrating nuclear weapons effects on underground storage facilities, other hard targets, and 14 additional very hard or very deep targets.
- Developed non-ideal airblast phenomenology to support United States Army Nuclear Chemical Agency (USANCA) warfighting issues and to assist STRATCOM in target planning.
- Developed a weapons output library to evaluate nuclear weapons effects from potential proliferants' weapons.
- Completed energy coupling analysis for the W87 and W88 nuclear warheads.
- Completed initial draft of radioactive output for non-US weapon output volume on tactical weapons.

Application of Nuclear Weapons Expertise ($15,354K)

- Developed a production capability to scale-up the manufacturing of high-energy-density dielectric materials for pulsed power applications.
- Constructed brassboard pulse power supplies to drive the new high density capacitor.
- Explored High Power Microwave (HPM) hardening technology for advanced applications; demonstrated effectiveness when applied to a commercial-off-the-shelf (COTS) computer.
- Conducted demonstration of Electromagnetic (EM) effects on weapon system for one of our allies.
- Completed long pulse megawatt class HPM power source.

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Project AC - Weapons Systems Lethality (cont'd)

Began definition of the vulnerability of nuclear reactors and nuclear reprocessing facilities to weapons effects.
Developed a design module to evaluate the resistance of hardened structures to the effects of advanced conventional weapons.
Validated predictive methods for advanced warheads and incorporated the results into the Munitions Effects Assessments (MEA) targeting tool.
Expanded MEA software to include additional fixed targets and weapons.
Delivered advanced fluid/structural computational tools.

Weapon/Target Interaction ($16,896K)

Developed fragility models for the components in high value fixed targets, including tunnels.
Enhanced the MEA targeting methodology for the hard-to-defeat targets by including updated lethality models.
Produced a final version of "Protective Structures Analysis and Design System" (PSADS), a portion of the Design and Analysis of Hardened Structures (DAHS) manual.
Began gun testing of composite projectile flight body components for ETC indirect fire.
Successfully fired steel projectile aft pin assembly and ignited rocket motor component post gun launch.
Completed advanced ETC indirect fire cartridge testing.
Began full-scale testing of ETC direct fire cartridges for the M256 main tank gun.
Initiated the UNIX version of the Hazard Prediction Assessment Capability (HPAC).
Expanded the Virtual Interactive Target (VIT) to include additional weapons and target types.
Provided weapon effects visualization capability to Counterproliferation Advanced Concept Technology Demonstration (CP ACTD).
Conducted initial hard target electrical effects test to evaluate functional defeat modes.
Procured specialized hardware/software for integration of weapons effects, structural response, nuclear phenomenology aides in DIS/High Level Architecture (HLA) environment.

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Project AC - Weapons Systems Lethality (cont'd)

US/Allied Survivability and Operability in Nuclear/Special Weapon Environments ($520K)

Updated analysis tool for STRATCOM to assess aircraft survivability in dust environments along planned Single Integrated Operation Plan (SIOP) routes.

Test and Simulation ($1,130K)

Initiated effort to remove the artificialities in pressure environments found for height-of-burst (HOB) weapons effects and implement in targeting tool for STRATCOM.

Developed geologic models needed for nuclear MEA targeting.

FY 1998 Plans

Nuclear Weapons Effects Phenomenology ($6,674K)

Distribute interim Threat Vol 2 of Nuclear Weapons Manual & Output Handbook. Begin work on advanced nuclear threat volume.

Start development of computational capabilities to obtain 3-D radioactive output for strategic weapons.

Begin work on very hard target kill methodologies that will address multi-burst assessments of current weapons systems.

Complete the geological analysis of two additional foreign sites.

Finish material properties definition of a foreign target site.

Demonstrate prototype of nuclear MEA to NATO/SHAPE.

Perform nuclear terrorist incident analysis and consequence assessment.

Technical Information ($1,528K)

Begin development of integrated CD ROM nuclear weapons effects computational aid.

Beta test and distribute battlefield nuclear targeting CD ROM.

Disseminate electronic version of Effects Manual-1 (EM-1) Technical Handbook.

Update chapters 2 & 3 of EM-1.

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Project AC - Weapons Systems Lethality (cont'd)

Application of Nuclear Weapons Expertise ($16,346K)

Define the weapons effects vulnerability of nuclear reactors.
Construct breadboard of compact pulsed power sources.
Demonstrate HPM source effectiveness against multiple foreign assets in open field testing.
Develop HPM hardening technology for Command and Control Warfare (C2W).
Begin to develop key technologies for advanced long pulse HPM solid-state sources.
Begin testing HPM hardening countermeasures on tactical systems.

Weapon/Target Interaction ($15,706K)

Conduct HPM functional defeat experiments on C^3I components.
Execute test program to define the vulnerability of components, subsystems and systems found in high-value fixed targets.
Develop fragility models for components found in high value fixed targets.
Begin work on Revision 1 of the DAHS manual that will include current research.
Develop vulnerability models for nuclear power plants attacked by advanced weapons.
Continue work on precision experiments for data gaps in DAHS methodologies.
Conduct full-scale testing of ETC direct fire cartridges for the XM291 main tank gun.
Continue scale test program to define penetration limits for advanced penetrators in rock.
Validate second generation weapon effects models used in MEA.
Complete gun testing of long-range composite projectile flight body.
Release a damage model for heavy water reactors attacked by conventional weapons.
Provide technical support and hardware/software to integrate weapons effects and target response codes into distributive environment.

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Project AC - Weapons Systems Lethality (cont'd)

Achieve 14 MJ in M256 tank gun using ETC 120mm cartridge.
Complete full steel projectile aeroshell gun testing.
Fire composite aeroshell with rocket motor to ballistic range of 25 nmi.
Conduct experimentation of ETC cartridge design for 17MJ performance level.
Complete investigation of new, more energetic material to achieve capacitor capabilities.
Complete construction and begin operation of charge development building at Green Farm.
Provide interactive synthetic targets for instrumented bombing ranges.
Continue advanced ETC direct fire and EM projectile testing.

US/Allied Survivability and Operability in Nuclear/Special Weapon Environments ($370K)

Add graphics to analysis tools for STRATCOM to assess B-2 aircraft dust survivability for planned SIOP routes.

Test and Simulation ($1,182K)

Extend initial nuclear MEA models to develop site and regional models for ground shock kill of ultra-hard targets.
Perform validation testing for particle formulation models for nuclear fallout prediction in urban areas.

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Project AE - Weapon Safety and Operational Support -This project is critical to the maintenance of a safe, secure and reliable nuclear deterrent, given that the enduring stockpile will retain weapons far beyond their designed life. Stockpile support efforts in this project include nuclear weapons stockpile technology for weapon system sustainment, probabilistic risk-based system safety assessments, and nuclear physical security policy/requirements validation. Reliability efforts include participation and assistance to Dual Revalidation, Annual Certification, and the Stockpile Stewardship Program. This project performs research and development in support of nuclear contingency planning, force structure deployment and employment options, innovative nuclear command and control concepts, nuclear mission planning, vulnerability assessments, safety assessments, advanced survivability concepts, and theater missile defense against Weapons of Mass Destruction (WMD) delivery systems and warheads. Vulnerability assessments of DoD and Allied fixed and mobile Command, Control and Communications (C3) assets subjected to WMD effects are also part of this project. This project includes the Modeling and Simulation Center, which provides integration of weapons effects, downwind hazard prediction models and force effectiveness models to users in acquisition, training, exercises, operations other than war, and warfighting. DSWA provides oversight, technical support and curriculum review for the Defense Nuclear Weapons School (DNWS) and other DoD nuclear training activities.

This project is in direct support of Presidential Decision Directives and taskings and requirements from OSD, the Joint Staff and CINCs. Relevant directives include National Security Strategy of Engagement and Enlargement, National Security Science and Technology Strategy, National Military Strategy, Joint Strategic Capabilities Plan, Presidential Decision Directives, Defense Planning Guidance, and prioritization memorandums from CINCs. These efforts have been closely coordinated with Joint Staff, OSD offices, CINCs and Services, Department of Energy, Federal Emergency Management Agency and the Federal Bureau of Investigation. The thrust of this project supports the JCS Joint Vision 2010 Warfighting Capabilities of Dominant Manuever, Precision Engagement, and Full-Dimensional Protection.

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Project AE - Weapon Safety and Operational Support (cont'd)

FY 1997 Accomplishments

Nuclear Operations ($15,530K)

Tested and computer-modeled pooled fuel fire heat fluxes and temperature distribution for B-52 fuel cell leak and storage building enclosing fuel leak.

Prototyped and tested structural rebar tester to verify lightning protection system integrity for munition storage igloo.

Completed initial testing of prototype munitions storage igloo electrical/lightning sensitivity tester.

Initiated safety methods discussion with Russian counterparts.

Completed B-52H mock wing testing facility at national testing site for fuel fire mission.

Completed data collection and analysis for three of seven B-52H assessment phases.

Initiated safety assessment for fighter aircraft stationed in Europe.

Participated in the planning and initial execution of Dual Revalidation of the W76. Highlighted program and potential impacts to DoD. Supported ATSD(NCB), Joint Staff, Services and STRATCOM in Annual Certification and other stockpile stewardship activities.

Developed a comprehensive collection of historical weapon development documents on CD-ROM for future reference during sustainment planning.

Performed an analysis of European area-wide Theater Missile Defense Command and Control requirements to support SHAPE.

Supported AFNORTH WMD deterrence requirements for force survivability, posture and employment options through analysis of Extended Air Defense requirements.

Delivered an editable, digital, artificial geographic database Synthetic Exercise Environment (SEE), with supporting forces, weather, and installation data for exercises and wargames involving the use of WMD.

Continued the initial development of an automated planning system for the airborne portion of the SIOP for STRATCOM.

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Project AE - Weapon Safety and Operational Support (cont'd)

Initiated a study towards the development of an interface between Air Vehicle Planning System (APS) and service planning systems such as Tactical Aircraft Mission Planning System (TAMPS), NATO Nuclear Planning System (NNPS), and US/NATO intelligence systems.

Initiated an adaptive planning system software program to develop a deployable strategic planning capability for STRATCOM and initiate a moderized software interface between data collection sources and the Nuclear Planning and Execution System (NPES).

Initiated the development of a replacement message/data handling spooler for the NPES. Cooperative effort with STRATCOM, JCS J38, and DISA.

Continued developing a prototype computer-based training capability for nuclear planning, emphasizing adaptive nuclear planning using NNPS parameters.

Continued the nuclear planning system target data feed which provides intelligence planning data in support of NATO nuclear planning.

Continued the development of a methodology for STRATCOM which includes the impact of fallout effects in achieving effective denial or delay of enemy access to key installations as a result of a nuclear strike.

Provided analytical support to assess STRATCOM capability to effectively meet national objectives involving the Single Integrated Operations Plan (SIOP) while reducing its complexity.

Utilized an analytical framework that facilitates WMD deterrence approaches to the needs of multi-regional scenarios.

Provided quick turn analysis on WMD consequence issues for OSD, Services and Joint Staff and provided weapons effects analysis to weapons Project Officer's Groups and weapons modification programs as requested.

Continued supporting system assessment and analytical weapons concepts as required; developed mission and consequence analysis for HQ Air Combat Command's (ACC) Agent Defeat Weapon phase studies and Analysis of Alternatives (AOA).

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Project AE - Weapon Safety and Operational Support (cont'd)

Education/Training to Maintain Core Competencies ($1,269K)

- Completed development of the Automated Nuclear Weapons Training System and transitioned it to DNWS.
- Continued development, improvement, and integration of course materials for the DNWS.
- Continued nuclear operational training support to CINCs, Services, and OSD.
- Continued development of DoD general interest nuclear training program.
- Continued support for DoD and CINC exercises and wargames with WMD/target response analysis and counterproliferation.

Modeling and Simulation ($1,338K)

- Achieved full operational capability of the DSWA Modeling and Simulation Center, including connectivity.
- Provided technical support for exercises and war games.
- Integrated WMD modules into campaign level analytical and assessment models to analyze effects of these weapons on campaign plans.
- Initiated Analysis and Assessments Phase II contract to provide real-time support to Services through enhanced infrastructure, deployment teams, integrated models, and technical support.
- Updated and refined support database per CINCs, Services, and Joint Staff guidance and continue development of consequence analysis of WMD counterproliferation programs.
- Continued to develop Extended Air Defense Simulation (EADSIM) based scenarios for additional studies to support STRATCOM requests.

Nuclear Weapons Effects Phenomenology ($1,505K)

- Provided an initial adaptive capability for 36-hour weather forecasts in support of operational exercises and test support, which will add to the effectiveness of WMD consequence predictions.

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Project AE - Weapon Safety and Operational Support (cont'd)

US/Allied Survivability & Operability in Nuclear Designated Advanced Weapons Environments ($5,476K)

Provided functional assessments of U.S. and foreign underground facilities identifying "Achilles' heels" for hard and mobile systems.

Assisted operational users in choosing investment strategies to mitigate and/or eliminate vulnerabilities.

Conducted Integrated Systems Assessments of selected national defense infrastructure facilities.

Continued Advanced Data Communications Survivability Program analyses and assessments.

Developed Prototype Survivability Planning System and planned follow-on Survivability Integration Demonstration Program.

FY 1998 Plans

Nuclear Operations ($16,568K)

Complete the analysis of monomethylhydrazine (hypergolic) propellant for Minuteman III.

Complete the safety assessment of the B-52H aircraft.

Continue safety assessment for dual capable fighter aircraft to define operational risk management inputs and ensure USAFE nuclear capable weapon systems availability.

Provide safety assessment support to the NWC, ATSD(NCB), STRATCOM, Services, and Project Officer's Group.

Continue experimental testing to develop a technology base for fuel fire, energetic materials and electrical/lightning.

Complete the study on the development of an interface between APS and service planning systems such as TAMPS, NNPS, and US/NATO intelligence systems.

Initiate the development of the interface between APS and service planning systems such as TAMPS, NNPS, and US/NATO intelligence systems.

Continue an adaptive planning system software program to develop a deployable strategic planning capability for STRATCOM and initiate a modernized software interface between data collection sources and the NPES.

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Project AE - Weapon Safety and Operational Support (cont'd)

Complete the development of a replacement message/data handling spooler for the NPES. Cooperative effort with STRATCOM, JCS J38, and DISA.

Complete development of prototype computer-based training capability for nuclear staff planners, emphasizing adaptive nuclear planning.

Continue development of the nuclear planning system target data feed which provides intelligence planning data in support of NATO.

Complete the development of a methodology for STRATCOM which includes the impact of fallout effects in achieving effective denial or delay of enemy access to key installations as a result of a nuclear strike.

Continue to provide analytical support to assess STRATCOM's capability to effectively meet national objectives involving the SIOP while reducing its complexity.

Utilize an analytical framework that facilitates alternative WMD deterrence approaches to the needs of multi-regional scenarios.

Conduct an annual force-on-force exercise to evaluate and validate policy standards as designated by the Security Policy Verification Committee (SPVC).

Continue to provide quick turn analysis on WMD consequence issues for OSD, Services, and Joint Staff and provide weapons effects analysis to Project Officer's Groups and weapons modifications program as required.

Begin development of an integrated reporting system for automated reporting of Nuclear, Biological and Chemical (NBC) activity and hazard predictions. Provide support to the CINC planning staffs on NBC capability and impacts on warfighting capability.

Develop mission and consequence analysis for HQ ACC's Agent Defeat Weapon phase studies and Analysis of Alternatives (AOAs).

Education/Training to Maintain Core Competencies ($1,050K)

Provide nuclear operational training support to CINCs, Services, and OSD.

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Project AE - Weapon Safety and Operational Support (cont'd)

Continue development of general interest DoD nuclear training program.
Continue development, improvement, and integration of course materials for the DNWS.
Support DoD and CINC exercises and wargames with WMD/target response analysis.

Nuclear Weapons Stockpile Management ($600K)

In support of stockpile stewardship and reliability, continue DSWA participation in, and support to, the Dual Revalidation program with research, technical analysis, and assessment reports.
Provide technical support, progress reports and recommendations to ATSD(NCB), Joint Staff, Services, STRATCOM and other Combatant Commanders as required related to weapons safety, reliability and performance.
Provide support to the Annual Certification program and to the service weapons life-extension programs.
Develop a collection of historical development documents on CD-ROM related to sustainment of DoD nuclear weapon delivery platforms.

Modeling and Simulation ($2,655K)

Increase DSWA Modeling and Simulation (M&S) Center capability with a broadband (DS-3) global networking circuit and an operational INTEL-S node.
Continue integration of WMD modules into campaign level analytical and assessment models.
Provide technical and operational consequence analysis support for exercises and wargames.
Continue Analysis and Assessments Phase II contract to provide real-time support to Services through enhanced infrastructure, deployment teams, integrated models, and technical support.
Update and refine support database per CINCs, Services and Joint Staff guidance and continue development of consequence analysis of WMD counterproliferation programs.
Continue development of EADSIM based scenarios for additional studies to support STRATCOM requests.

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Project AE - Weapon Safety and Operational Support (cont'd)

Integrate DSWA weapons effects codes into Common Operational Modeling, Planning and Simulation Strategy (COMPASS) program.

Publish classified and unclassified M&S Center web page.

Continue support of Director of Military Support (DOMS) and USMC/ Chemical Biological Incident Response Force with hazard prediction and consequence assessments regarding military/domestic threats involving WMD.

Nuclear Weapons Effects Phenomenology ($1,433K)

Deliver an operational, automated, adaptive, user-friendly, high resolution 36 hour weather forecast capability to CINCs and Services.

US/Allied Survivability & Operability in Nuclear/Designated Advanced Weapons Environments ($5,119K)

Deliver underground facility characterization and vulnerabilities guide to support CINCs and intelligence community in functionally defeating hard and deeply buried targets.

Conduct Balanced Survivability and Integrated Vulnerability Assessments as tasked by CINCs and DoD Agencies.

Develop and apply sensor technology for target characterization and battle damage assessments.

Weapon/Target Interaction ($1,332K)

Integrate additional DSWA peculiar weapon effects and target response models into High Level Architecture (HLA) and CINC planning tools.

Integrate weapons effects and target response models in a live virtual and constructive environment which can be visualized for training, exercises and Bomb Damage Assessment using weapons effects Federates to satisfy customer requirements.

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Project AF - Weapon System Operability - Current and future warfighters and weapon systems, including the associated Command, Control, Communications, Computers and Intelligence (C4I) and support systems, must be able to tolerate and operate effectively through a spectrum of hostile battlefield environments. Planned efforts emphasize the development and demonstration of innovative and cost effective technologies to sustain the functional survivability of U.S. and Allied Forces and systems to advanced conventional weapons and limited nuclear attack. The military systems of interest include those that support warfighting missions in the air, on land, at sea, or in space.

This project constitutes the DoD's residual science and technology expertise in nuclear and related survivability matters. It develops and demonstrates affordable strategies and hardening technologies for U.S. systems; transfers the technical products to acquisition program offices; conducts component, subsystem, system and end-to-end performance tests and assessments as requested by the Services and CINCs; and provides support to the Office of the Secretary of Defense on technical and policy matters that relate to the acquisition of survivable systems and strategic system sustainment. Specific programs in the project include: development and demonstration of the enabling technologies for ensuring the continued availability of special materials and radiation tolerant microelectronics and photonic devices; development and demonstration of affordable hardening and mitigation methods that treat the adverse effects from electromagnetic, natural space and nuclear weapons engendered radiation (i.e., ionizing radiation and displacement damage), nuclear electromagnetic pulse, high power microwave and nuclear atmospheric environments; direct support to warfighters by predicting and quantifying the operational impact of nuclear, biological and chemical (NBC) and conventional battlefield environments on systems and personnel; development and demonstration of cost effective system design and test certification techniques for testable hardware that does not require underground nuclear tests; methods for measuring and increasing soldier effectiveness on NBC battlefields; performance and cost analysis to support the Defense Acquisition Board; and joint efforts with system program offices to apply the Agency's expertise and technologies to specific Service applications.

This project provides the testable system design rules and protocols for users of nuclear effects simulators that are funded in Project AB. It also supports the following JCS Joint Warfighting Capabilities: Information Superiority, Counterproliferation, Electronic Warfare, and Precision Force.

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Project AF - Weapon System Operability (cont'd)

FY 1997 Accomplishments

Nuclear Weapon Phenomenology ($9,442K)

Continued development of Nuclear Weapons Effects (NWE) codes.
Supported Space Based Infrared Satellite (SBIRS) sensors.
Completed initial analyses of National Missile Defense (NMD) communication and radar functions in a nuclear environment.
Delivered upgraded version of Strategic C4I Assessment Tools (STRATCAT) to USSTRATCOM.
Continued developing Initial Space environment prediction Model (ISM).
Developed equatorial inospheric clutter model for system analysis of new Over the Horizon Backscatter (OTH B) radar.
Enhanced computer codes for predicting nuclear weapon effects on communication systems.
Demonstrated human variability for radiation performance decrement.
NWE Human Response Models and Simulations.
Demonstrated human variability for radiation-induced and fire suppression-induced performance decrement in Modular Semi-Automated Forces.
Demonstrated connectivity for infrastructure data exchange with the Intel Net.

US/Allied Survivability & Operability in Nuclear/Special Weapon Environments ($18,720K)

Began testing of spacecraft, missile, and sensor demonstration test objects for validation of design and test protocols.
Demonstrated software solutions to minimize radiation effects on system operability.
Completed Aboveground Testing (AGT) and evaluation of materials for correlation with Underground Testing (UGT) data.
Developed optical material test coupons to identify the relationship of design specification to material response for protocol development.
Conducted combined effects testing of optical elements to resolve protocol issues.
Completed commander's guidance for operations in low-level radiation environments.

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Project AF - Weapon System Operability (cont'd)

Evaluated the end-to-end operability of NMD architectures/elements in nuclear-disturbed environment.
Evaluated the vulnerability of systems and C4I nodes exposed to a nuclear-disturbed environment.
Assessed/implemented innovative, low-cost Electromagnetic Pulse/High Power Microwave (EMP/HPM) hardening technology concepts for Service equipment survivability.
Continued assessment and testing of critical fixed-ground-based and mobile C4I facilities.
Developed PC-based Electromagnetic (EM) protection tool.
Delivered a regional version of the Consequence Assessment Tool Set to SOUTHCOM.

Radiation-Tolerant Microelectronics, Materials, and Electro-optics ($12,339K)

Demonstrated, tested, evaluated, and qualified production-worthy, radiation-tolerant 1-megabit Complimentary Metal Oxide Semiconductor/Silicon-on-Insulator (CMOS/SOI) and bulk Static Random Access Memory (SRAM) for U.S. Air Force Space and Missile Command (USAF/SMC) and BMDO.
Demonstrated, tested and evaluated radiation-tolerant SOI Bipolar Complementary Metal Oxide Semiconductor microelectronics for mixed signal applications in support of USN, USAF and BMDO requirements.
Demonstrated radiation-tolerant, low-power 200k gate array for USAF/SMC and BMDO use.
Demonstrated radiation tolerant, charge-coupled device (CCD) technology in support of USAF/SMC.
Completed development of the Microelectronic and Photonics Test Bed (MPTB) in preparation for the FY98 flight of the MPTB flight vehicle in support of USN, USAF and BMDO.

FY 1998 Plans

Nuclear Weapons Effects Phenomenology ($11,214K)

Continue optical environmental support to SBIRS program.

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Project AF - Weapon System Operability (cont'd)

Complete enhancment of existing Nuclear Optical Radar Simulation Environment/Advanced Systems Survivability Integrated Simulation Tool Set (NORSE/ASSIST) and development of Nuclear Simulation (NUCSIM) NWE codes.
Perform SBIRS Low Earth Orbit (LEO) communication link evaluation.
Continue development of ISM.
Develop NWE model to perform analysis of HF/VHF systems.
Complete STRATCAT Version 2.0 for USSTRATCOM.
Review Russian EMP test data and development of a EMP Vulnerability Number (VN) product.
Enhance human response models - Consequence Assessment Tool Set (CATS) version 3.5, Joint Radiation Risk model and Fatigue Model.
Develop NWE Human Response Simulations, develop High Level Simulator (HLS) Chemical, Biological, Radiological (CBR) & FOX simulator.

US/Allied Survivability & Operability in Nuclear/Special Weapon Environments ($18,079K)

Correlate material testing data to predict system-level performance.
Develop AGT/UGT threat correlation derived from the completed materials data sets.
Develop structural response data for missiles, penetration aids and reentry vehicles from UGT and data.
Upgrade testable hardware protocols based on validation testing of sensor subsystems in nuclear environments.
Finalize spacecraft missile design and test protocols.
Continue testing for validation of sensor design and test protocols.
Continue development and evaluation of low-level radiation standards and equipment for NATO review.
Complete evaluation of the end-to-end operability of NMD/Theater Missile Defense (TMD) architectures/elements in nuclear-disturbed environment.
Demonstrate Prototype Survivability Simulator Planning System in operational environment.

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Project AF - Weapon System Operability (cont'd)

Initiate follow-on Survivability Integration Demonstration Program.

Conduct SBIRS operability assessment, and evaluate the vulnerability of systems exposed to a nuclear-disturbed environment.

Demonstrate affordable EMP/HPM design and test technologies, develop system hardening technology against advanced HPM techniques, and continue assessment and testing of critical fixed-ground-based C4I facilities.

Update High Altitude Electromagnetic Pulse (HEMP) protection/test standards.

Perform initial demonstration of radiation-tolerant, 16-megabit SRAM integrated circuit technology required by USAF and BMDO.

Radiation-Tolerant Microelectronics, Materials, and Electro-optics ($14,580K)

Test and evaluate radiation-tolerant analog and digital microelectronics.

Demonstrate radiation-hardened 4M SRAM prototype.

Evaluate advanced photonics and compound semiconductor technology for DoD space-based applications.

Demonstrate radiation-tolerant, ultra-low-power SOI microelectronics technology in support of USN, USAF and BMDO requirements.

Conduct operability assessment of the Tactical Warning/Attack Assessments (TW/AA) System as it transitions to MILSTAR, SBIRS, and the Nuclear Detection System (NDS).

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Project AG—Scientific Computations & Information Systems. This project provides High Performance Computing (HPC), computational databases, information products, and advanced numerical models that enable the Agency's customers, researchers, and RDT&E contractors to answer questions about nuclear and advanced special weapons effects. Models, codes, and information products are developed to aid the design of experiments, predict types and levels of measurements required, establish system design requirements, assess performance, and provide system-specific predictions of weapons effects to DoD planners. Nuclear issues often require use of advanced computational resources, e.g., for investigation of the physics of weapon-target interactions, and for extrapolating test results into areas for which tests are no longer possible. This has required the Agency to develop a world-class high performance computing architecture with high bandwidth communications. This capability, currently with a hub at Los Alamos National Laboratory, is scheduled to transition to the new DoE and DoD HPC architecture over the FYDP. The Agency's Data Archival and Retrieval Enhancement (DARE) information system (a digital archive & retrieval system tailored to the specific needs of the researcher, the system designer, and developer) is supported by this project. This project funds the "graybeard" efforts for collection of unique and potentially perishable nuclear data with appropriate prioritization based on technical value. The principal thrusts respond to warfighter requirements for survivable systems and effective weapons in the Joint Warfighting Technology Areas of Discriminate Attack, Global Reach, and Counterproliferation.

FY 1997 Accomplishments

Nuclear Weapons Effects Phenomenology ($5,973K)

- Concluded development of DARE test data and waveform standards.
- Provided scientific and technical information services and products as the DoD wide repository for test photos, films, data, test records and other information products.
- Provided text to update Glasstone's book, The Effects of Nuclear Weapons, the standard reference for nuclear weapons effects.
- Disseminated Science and Technology Digest.
- Continued operation of web site providing radiation response of electronic parts.

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Project AG—Scientific Computations & Information Systems (cont'd)

Created Graybeard master plan to consolidate nuclear weapons effects test data, comment on data by original researchers, and prepare data for electronic archival in DARE.

Reviewed, approved, and archived perishable nuclear test data.

Infrastructure ($6,159K)

Provided computer operations support through CRAY resources.

Provided continuous technical assistance for users of CRAY and other DoD HPC platforms and high performance networks to display supercomputer results.

Continued DATACOM computational support by providing annual support for Wide Area Network connection with additional T-1 backbone and high speed links.

Continued providing ongoing technical assistance and network management and conduct annual assessment of circuit utilization, price/performance, and requirements.

Completed acquisitions to create a scientific computing data center at the Agency and facilitate data researchers' access to DoD HPC modernization plan resources.

Completed initial phase of DSWA hubsite for enhanced connectivity to DoD HPC resources, and fully interconnect with the Defense Research and Engineering Network (DREN).

Provided broad-based science and technology Information Analysis Center research support.

Developed a nuclear targeting CD-ROM for battlefield.

Applications of Nuclear Weapons Expertise ($2,429K)

Added original data to Nuclear Effects Data Management Assessment System.

Initiated development of computational aids for total characterization of nuclear weapons effects.

Initiated update of two more chapters of EM-1.

Began update process of the unclassified textbook entitled, The Effects of Nuclear Weapons.

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Project AG—Scientific Computations & Information Systems (cont'd)

Distributed the engineering handbook entitled, EM-1 Technical Handbook.

Developed integrated nuclear weapons effects computational aids.

Demonstrated the Agency's advanced numerical models at technical symposia.

Provided Advanced Computational Methods support by completing code work on explicit radiation modeling. Continued combustion/afterburning modeling for incendiary devices.

Data Archival and Retrieval Enhancement (DARE) ($1,883K)

Expanded archival of airblast, thermal, and other nuclear test data, reports, and photography for population of DARE.

Continued development and testing of computational tools and system enhancements which provide greater search and analysis capability to the DARE customer.

Initiated development of video/text interrelationship with hyperlink capability.

Nuclear Weapons Technical Assistance Publications ($444K)

Provided common administrative support (personnel, equipment, maintenance) for publication and distribution of the Agency's scientific and technical reports.

Weapon/Target Interaction ($187K)

Benchmarked the Gudunov Adaptive Mesh Refinement (AMR) code with reactive burn model against precision experiments.

FY1998 Plans

Nuclear Weapons Effects Phenomenology ($7,221K)

Complete master plan for ionization and EM effects areas of Graybeard knowledge capture program. Initiate archival of electronics/environmental interaction test data.

Provide scientific and technical information services and products as the DoD wide repository for test photos, films, data, test records and other information products.

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Project AG—Scientific Computations & Information Systems (cont'd)

Continue revision of Glasstone's book, The Effects of Nuclear Weapons, the standard reference for nuclear weapons effects.
Disseminate Science and Technology Digest.
Review, approve, and archive nuclear test data.
Continue operation of web site providing radiation response of electronic parts.
Host workshops on groundshock, thermal damage, structures damage to identify data locations, extent, and breakout of data commentary.
Complete compendium of nuclear weapon effect event objects.
Complete master plan for thermo structural data review/commentary/archival.
Complete master plan for biological data review/commentary/archival.

Infrastructure ($7,398K)

Continue to provide computer operations support through centralized CRAY resources. Provide continuous technical assistance for users of CRAY and other DoD HPC platforms and high performance networks to supply display of supercomputer results.
Continue DATACOM computational support by providing annual support for Wide Area Network.
Continue to provide broad-based science and technology Information Analysis Center research support.
Continue computational support by providing annual support for the communication network and upgrade/acquire the network management equipment for the Agency hubsite.
Integrate DSWA's network with the DoD's HPC DREN network.

Applications of Nuclear Weapons Expertise ($976K)

Provide Advanced Computational Methods support to the International Shockwave Congress and demonstrate DSWA's advanced modeling techniques.
Conclude development of integrated nuclear weapons effects computational aids.
Continue to develop and upgrade computational aids of nuclear weapons effects on various electronic media.

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Project AG—Scientific Computations & Information Systems (cont'd)

Disseminate individual nuclear weapons effects computational aids.
Conclude development and data inclusion to nuclear effects data management assessment system.
Provide Advanced Computational Methods support by validating code work on explicit radiation modeling.
Continue combustion/afterburning modeling for incendiary devices.
Validate advanced numerical models for complex flow/chemistry.
Perform a numerical study for the Advanced Radio Frequency Payload concept in support of DoD programs.
Provide Advanced Computational Support by hosting the International Shockwave Conference.

Data Archival and Retrieval Enhancement (DARE) ($3,418K)

Expand archival of information and knowledge of nuclear weapons, other Weapons of Mass Destruction (WMD) and Agency mission areas for retrieval in DARE as outlined in DARE Master Plan.
Develop and test computational tools and system enhancements which provide greater search, retrieval, storage and analysis capability to the DARE customer.
Continue development of video/text interrelationship with hyperlink, and other innovative knowledge enhancement and preservation tools.

Weapon/Target Interaction ($200K)

Add a reactive turbulent premixed combustion model to the AMR code and validate against precision experimental data.

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Project AI - Hard Target/Tunnel Defeat & Nevada Test Site (NTS) Sustainment

The United States and its allies face a growing threat related to critical military targets hidden within and shielded by hardened, deeply buried tunnel complexes which house battle management facilities, command, control, and communications facilities, theater ballistic missiles and their transporter-erector-launchers (TELs), and biological/chemical/nuclear weapons production or storage facilities. An objective of this program is to examine the existing U.S. and Allied capabilities to hold hardened, deeply buried tunnel targets at risk, thereby defining a current performance baseline. Any deficiencies will be identified and the ability of planned systems to address these deficiencies will be assessed. Finally, new technologies needed to mitigate remaining shortfalls will be evaluated as candidates for new hard target defeat acquisitions. Activities respond to priorities by the Office of the Under Secretary of Defense for Acquisition and Technology (OUSD(A&T)), Hard and Deeply Buried Target Defeat Capability Initiative and warfighting CINCs. Efforts in this program provide part of the technology base needed for counterproliferation activities conducted in other DoD programs.

The Presidential Decision Directive (PDD) on Stockpile Stewardship implemented an indefinite moratorium on underground nuclear testing while requiring retention of the capability to resume testing at Presidential direction. DSWA has complied with this policy by realigning the previously existing underground test program to emphasize non-nuclear weapons test technology and facility development, and to conduct a program for an orderly decommissioning and mothballing of the national underground nuclear test assets. The following major tasks will satisfy this requirement: (1) continue test complex shutdown, and tunnel stabilization and preservation; (2) continue environmental characterization; (3) document testbed design and construction methodology; (4) maintain UGT readiness through joint test organization activities at NTS including counterproliferation and hard target defeat testing; and (5) support SOCOM efforts to develop tactics and techniques for JCS Joint Warfighter Capabilities of Discriminate Attack and Counterproliferation. Project AI is linked to Project AB, through which its testing is conducted, and to Project AC which leverages its weapons work.

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Project AI - Hard Target/Tunnel Defeat & Nevada Test Site (NTS) Sustainment (cont'd)

FY 1997 Accomplishments

Weapon /Target Interaction ($1,955K)

- Completed data survey and geologic characterization of Korean Multiple Rocket Launcher (MRL) sites.
- Continued support for USD(A&T)'s Hard and Deeply Buried Target Defeat Capability program.
- Completed lab-scale portal damage tests on intact rock.

Bomb Damage Assessment ($500K)

- Developed an automated weaponeering tool for portal and tunnel damage (based on tunnel portal test data).
- Continued compiling a database of Balanced Survivability Assessments and began applying the data to the problem of identifying vulnerable nodes in underground facilities.

Test and Simulation ($2,690K)

- Maintained Agency activities at NTS in support of environmental remediation activities.
- Provided on-site personnel to plan and supervise environmental remediation of Agency facilities.
- Maintained one tunnel complex in support of the stockpile stewardship program.
- Completed lab-scale penetration tests on intact rock in support of phenomenology/validation tests.
- Completed tests on unlined and lined tunnels in Norway geology.
- Evaluated weapon/target interactions for new weapons concepts, enhanced payloads, and target fragility.
- Continued test sequence for hard target kill and functional vulnerability of hard tunnel facilities.
- Continued supporting SOCOM training and tactics development by providing targets, equipment and personnel.

FY 1998 Plans

Weapon/Target Interaction ($3,989K)

- Develop geoengineering models describing key aspects of geology pertaining to warhead penetration and damage propagation.

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Project AI - Hard Target/Tunnel Defeat & Nevada Test Site (NTS) Sustainment (cont'd)

Enhance the MEA tunnel module by adding subroutines for improved target geology, penetration models, and subsystem damage.

Continue support for USD(A&T)'s Hard and Deeply Buried Target Defeat Capability program.

Evaluate weapon/target interactions for new weapons concepts, enhanced payloads, and target fragility.

Continue field tests on blast/fragmentation/fire damage to target subsystems, including blast doors, vehicles, and equipment.

Collect and evaluate target and event signatures for surveillance.

Bomb Damage Assessment ($500K)

Complete the automated engineering tool to identify and exploit vulnerable nodes in underground facilities.

Begin evaluation of target reconstitution, post-attack.

Test and Simulation ($6,219K)

Maintain Agency activities at NTS in support of environmental remediation activities.

Provide on-site personnel to evaluate environmental remediation requirements of Agency facilities.

Maintain one tunnel complex in support of the stockpile stewardship program.

Conduct tunnel construction/test support exercises.

Perform tests and demonstration for functional kill of operational hard tunnel facilities.

Continue test sequence for hard target kill and functional vulnerability of hard tunnel facilities.

Begin construction of a missile tunnel facility test tunnel.

Undertake site characterization and relative risk evaluation (drilling, sampling, and analysis) for the Area 12 Drillholes, Rainier Mesa Mudpits at T-, N-, and E-Tunnels, and N-Tunnel Drums site.

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Project AN - Thermionics - Meeting national objectives in both the military and civilian areas will require large capacity (40-100kW) nuclear space power systems having long lifetimes. Potential applications have been identified by the Air Force and NASA. The Air Force "New World Vistas" study, dated 15 December 1995, cites specific requirements for space nuclear power to accomplish force projection from space. NASA has identified requirements for power and propulsion for contemplated deep space missions and manned exploration. The objectives of the Advanced Thermionics Program are to advance the state of the art of thermionic power conversion in the United States, to develop high performance and highly reliable thermionic converters that provide high output power per unit of system mass, to demonstrate the capabilities of these thermionic converters, to show their feasibility for use in thermionic systems, and to develop corresponding system level conceptual designs. This effort supports the Defense Technology Area Plan for Space Platforms.

FY 1997 Accomplishments

In-core thermionic development ($1,800K)

Awarded contract to design, fabricate, and (non-nuclear) test high-performance and high-reliability converters for in-core thermionic fuel elements. Completed initial models of 100 kilowatt power system and corresponding converter.

Microminiature Thermionic Converters (MTCs) ($1,200K)

Successfully applied trial tricarbonate coatings on the emitter portion of the converters, and initiated work on scandate coatings. Completed conceptual designs of individual MTC cells and of ten-cell modules with both series and parallel circuits.

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Project AP - Antiterrorism/Counterrorism - This project was created to accommodate an FY 97 Congressional add under the FY 1997 Antiterrorism Budget Amendment. The funds were provided for the purpose of applying Agency expertise in physical security of nuclear weapons and vulnerability assessments to parallel physical security and facility vulnerability issues in the antiterrorism arena. The efforts were focused to enhance the security of U.S. forces and assets by identifying vulnerabilities and potential mitigation techniques and support.

FY 1997 Accomplishments ($2,498K)

Adapted hardened underground facility vulnerability assessment methodology to apply in assessing facility vulnerabilities to devices likely to be employed by terrorists.

Conducted representative assessments to demonstrate and validate methodology.

Transitioned methodology and provided support to DoD personnel in achieving assessment capability.

Provided technical support to define and implement antiterrorism-related aspects of exercise planning and execution.

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Project AQ - Deep Digger - This project proposes to develop a "Deep Digger" design for attacking hard targets such as leadership or C3 Bunkers, underground factories, or weapon storage facilities. The U.S. Services have identified a need to defeat such hard and buried targets. Current weapons have only limited capability against these targets. A more effective penetrator capability such as that claimed by the inventor of "Deep Digger" is required.

This effort is responsive to Special Operations Forces interests as well as the consolidated Mission Need Statement of the U.S. Air Force Combat Command and the U.S. Strategic Command. The deep digger system would be delivered by a guided munition airframe such as used by the Air Force and the Navy. As an integrated weapon, this concept has application as a breeching tool.

FY 1997 Accomplishments

Technology Development ($2,000K)

Developed a detailed description of the digger concept.

Developed a risk reduction experimental plan.

Supported expert panel review with in-depth analysis and experiments.

Produced a concept development plan for a follow-on action.

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Project AR - Johnston Atoll Remediation - The Agency is currently managing the environmental restoration of a 24-acre site on Johnston Atoll which is contaminated with plutonium from atmospheric nuclear weapon missile aborts in 1962. The technology developed and used over the years is demonstrably successful; in two more years the volume of contaminated soil (dredged, filled, and compacted coral) will be reduced from 180,000 metric tons to 29,000 metric tons. That technology is reaching the limits of its effectiveness, and an additional process, yet to be identified, is necessary to further reduce the volume. The clean portion of the soil is available for use on Johnston Atoll. DSWA plans to dispose of the waste at the Nevada Test Site. With removal of the waste from Johnston Atoll, the 24-acre site can be returned to unrestricted use. At a current cost of $1.0 million per thousand metric tons of waste, the expense of shipping and disposing of the remaining low-level radioactive waste mandates that it be the smallest volume attainable.

To that end, the Agency has undertaken a program to identify and employ an innovative waste-reduction technology (or combination of technologies) to reduce the volume of waste to a manageable and less-expensive 5,000 metric tons. Through a series of vendor bench-scale and pilot-scale technology demonstrations with the support of the Department of Energy facilities at the Nevada Test Site, the Agency hopes to identify or develop an effective technology that can be scaled up to meet the unique conditions at Johnston Atoll.

FY 1997 Accomplishments

Technology Development ($2,000K)

Successfully completed two bench-scale technology demonstrations at the Nevada Test Site; follow on pilot scale technology demonstration to be conducted during FY 1998.

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Project AY - Bioenvironmental Hazards Research - This is a Congressionally mandated project that provides for research on bioenvironmental hazards of specific DoD concern. Areas of research include human health effects and risk evaluation, pollution preventions, waste stream treatment, remediation, and impact assessment of atmospheric emissions. Funds were provided as a Congressional addition in FY 1994, FY 1995, FY 1997 and FY 1998 and were intended to continue efforts begun by a grant in FY 1989 to Tulane and Xavier Universities. Additional funding was made available from existing Agency resources to comply with Congressional direction to continue this effort through FY 1996.

FY 1997 Accomplishment ($5,000K)
Awarded 12 Bioenvironmental Research grants. Areas of research include study of specific effects of environmental contaminants, remediation of NBC wastes reduction and remediation, risk assessments of JP-8 fuel, and others.

FY 1998 Plans ($5,000K)
Award research grants to study and understand mechanisms involving synergism between contaminants and their effect on the human and ecological systems.
Review final draft of research conducted with FY 1993 funds and publish report in late FY 1998.
Collect and analyze information and data on current remediation efforts, such as bioremediation, to ensure their effectiveness.

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B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget	192.3	212.0	221.7
Current Budget Submit/President's Budget	189.2	203.7	0.0

Change Summary Explanation:

In accordance with the November 1997 Defense Reform Initiative, resources for FY 1999 and out which were previously addressed in this PE have been transferred to PE 0602715BR (WMD Related Technologies).

C. Other Program Funding Summary:

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
0602715BR WMD Related Technologies	0.0	0.0	203.6	206.6	209.7	212.7	215.9

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711H**

COST *(In Millions)*	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete
Total 0603711BR Cost	25.3	80.8	0.0	0.0	0.0	0.0	0.0	Continuing
Project CA Strategic Arms Control Technology	8.2	7.8	0.0	0.0	0.0	0.0	0.0	Continuing
Project CB Conventional Arms Control Technology	9.9	9.0	0.0	0.0	0.0	0.0	0.0	Continuing
Project CC Chemical Weapons Convention	7.2	9.1	0.0	0.0	0.0	0.0	0.0	Continuing
Project CD Nuclear Arms Control Technology	0.0	54.9	0.0	0.0	0.0	0.0	0.0	Continuing

A. Mission Description and Budget Item Justification - This program element covers implementation, compliance, monitoring and inspection, research development test and evaluation (RDT&E) for existing and emerging arms control treaties and agreements. The funded projects conform to requirements presented and approved by the Office of the Under Secretary of Defense (Acquisition & Technology) through the DoD Arms Control Requirements Assessment Board (RAB) process. RDT&E fulfills the technical requirements to implement, comply with, and monitor the following treaties/agreements: the Treaty on the Reduction and Limitation of Strategic Offensive Arms (START); the Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II) (START III); the Anti-Ballistic Missile (ABM) Treaty; the Intermediate-Range Nuclear Forces (INF) Treaty; the Conventional Armed Forces in Europe (CFE) Treaty; the Open Skies (OS) Treaty; the Convention on Certain Conventional Weapons (CCW); the Chemical Weapons Convention (CWC); Comprehensive Test Ban Treaty (CTBT); the CFE Adaptation negotiations; the Anti-Personnel landmine negotiation; Presidential arms control initiatives; and other existing and emerging arms control related agreements, treaties, and initiatives, such as the United Nation's (UN) Transparency in Armaments; the Organization on Security and Cooperation in Europe's Vienna Document 94 (VD-94) and the Global Exchange of Military Information (GEMI); Missile Technology Control

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Mission Description and Budget Item Justification (cont'd) - Regime (MTCR) and the UN's Transparency in Armaments Agreement. It also provides confidence and transparency building capabilities to support DoD efforts concerning the Biological Weapons Convention (BWC), and conforms to the Administration's research and development priorities as related to both conventional arms control and weapons of mass destruction arms control, and disarmament. Arms control technologies are critical for enabling the U.S. to monitor, verify and implement international arms control treaties and other agreements whose purpose is to prevent the proliferation and or reduction of nuclear, chemical, biological, and other advanced conventional weapons. Technical assessments are made to provide the basis for sound project development, to evaluate existing programs, and to provide the data required to make compliance judgments. Technology developments and system improvement projects are conducted to ensure that capabilities to monitor, comply with, and implement treaties and agreements are available when required.

The program includes development of equipment and procedures for data exchanges, on-site and aerial inspections and monitoring, and other confidence-building measures. In addition, assistance is provided to the Office of the Secretary of Defense by providing technical support in preparing for U.S. compliance with treaty obligations. For example, work includes an assessment to determine the susceptibility of a CTBT verification regime to evasive measures. Results will be used by the CTBT negotiators to develop a technically robust International Monitoring System (IMS). Hardware and procedures developed are often transitioned to the On-Site Inspection Agency (OSIA), or appropriate international inspectorate, as in the case of the CWC, for use in conducting treaty mandated inspection and monitoring and for implementing transparency and confidence-building regimes. Where applicable, RDT&E to meet requirements in one treaty area is applied to fulfill requirements in other areas to eliminate duplication of efforts. For example, development of remote monitoring capabilities for future START Treaty applications will also be evaluated for use to verify limits and activities in a future conventional arms control regime. The technologies and procedures developed in the arms control technology program provided an invaluable source of information on equipment and procedures that was extensively used by an Agency team to support an interagency assessment of Long Term Monitoring of Iraq. The results of the effort and equipment developed in this program are being used to implement the provisions of United Nations Resolution 715.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711H

Mission Description and Budget Item Justification (cont'd) - The Agency's synergistic approach to fulfilling arms control requirements has been maximized in data management development. Arms control treaties require extensive exchanges of data concerning treaty accountable items, initial declarations, movements, etc., by signatory nations. The Agency has developed a treaty information management system, the Compliance Monitoring and Tracking System (CMTS), to accommodate these data exchanges and monitor U.S. compliance with treaty data reporting provisions. The CMTS provides treaty required data exchanges for INF, START, CFE and Confidence- and Security-Building Measures. A DoD system, Chemical Accountability Management Information Network (CAMIN), is under development to create the capability to transmit CWC required data. The Open Skies Notification System (OSNS) is being developed to support an anticipated FY1998 treaty entry-into-force (EIF). Operational control of the CMTS was transitioned to OSIA in a phased approach starting with Data Management/Notification System (DMNS) and START Central Data System (SCDS) in FY1997. The Chemical Weapons Convention Information Management System (CWCIMS) was offered to the Preparatory Commission at the Hague by the United States Government (USG). The Commission accepted the U.S. offer and the system was delivered in late FY1996.

Beginning in FY 1998, the architecture for presentation/execution of this program has been changed. Elimination and realignment of the Implementation and Compliance (I&C) category resulted in all negotiation, compliance, and implementation efforts moving to the Technical Assessments category. All hardware and software developments in I&C have moved to the Technology Development or Improvements category to reflect the actual nature of the effort.

The November 1997 Defense Reform Initiative (DRI) directed the establishment a Defense Threat Reduction and Treaty Compliance Agency effective 1 October 1998. As a result of the DRI, resources for FY 1999 and out which were previously addressed in this Program Element (PE) have been transferred to PE 0603711BR.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711H

Project CA - Strategic Arms Control Technology - This project consists of research, development, test and evaluation (RDT&E) activities required to provide the capabilities needed to conduct monitoring, inspections, and data exchanges under the Strategic Arms Reduction Treaty (START), START II, START III, Missile Technology Control Regime (MTCR), Safeguards, Transparency and Irreversibility (STI) Agreement, Anti-Ballistic Missile (ABM) Treaty, and the Intermediate-Range Nuclear Forces (INF) Treaty. It also assists the United States Government (USG) and industry in compliance with the treaties and development of technology to meet requirements of future strategic arms control agreements. The projects conform to requirements presented and approved by the Office of the Under Secretary of Defense (Acquisition & Technology), (OUSD(A&T)), through the DoD Arms Control Requirements Assessment Board (RAB) process and OSD/Arms Control Implementation and Compliance memorandum of 31 July 1997, subject: Guidance, Mission Needs and Requirements Summary.

The START Central Data System (SCDS), as part of the Compliance Monitoring and Tracking System (CMTS), enables the U.S. to generate treaty-required notifications, perform treaty compliance assessments, and transmit notifications to treaty states for START. The START II Treaty, signed in January 1993, requires inspections of converted SS-18 silos and authorizes additional re-entry vehicle on-site inspections of Intercontinental Ballistic Missiles (ICBMs) installed in the converted silos. It also introduces new rules for counting strategic forces that complicate START reporting. Tools developed by this program will enable the USG to effectively exercise treaty inspection rights and monitor compliance and reporting. Technology development efforts are planned to support anticipated future treaty requirements in the most non-intrusive and cost-effective manner. Future strategic arms control regimes may consider non-deployed missiles and warheads in all phases, to include conversion and/or elimination, and would require the development of new procedures and equipment to accomplish the monitoring task. The primary focus of the efforts is on more effective methods of measuring characteristic Treaty Limited Item (TLI) signatures with technologies such as object and pattern recognition and micro-machined integrated neutron detector and providing monitoring/inspection capabilities to ultimately reduce cost and increase the flexibility of U.S. inspectors.

Overall RDT&E requirements and implementation timelines are dependent on the desired robustness and implementation schedule for the various components of the verification regime. RDT&E is being initiated now to ensure that monitoring and

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Project CA - Strategic Arms Control Technology (cont'd) -
inspection systems are available at treaty entry into force (EIF) and that negotiators have the technical information to make informed decisions on key issues. This project supports the JCS Warfighting Capability of counterproliferation.

FY 1997 Accomplishments

Implementation and Compliance ($5.0M)

- Completed transition of CMTS SCDS system to the On-Site Inspection Agency (OSIA).
- Initiated implementation of future START/START II treaties data and information exchange revisions into CMTS.
- Completed requirements for START II data base.
- Provided treaty compliance assessments and planning support to OUSD(A&T)/ACI&C.
- Provided technical and engineering support to START Treaty commissions (JCIC/BIC).
- Delivered CMTS.

Technical Assessments ($.5M)

- Completed strategic weapons and materials monitoring assessment to support post-START II requirements to monitor mobile delivery systems, non-deployed nuclear weapons and delivery systems, and warhead inventories.
- Completed assessment of existing analytical tools for applicability to ABM/Theater Missile Defense (TMD) demarcation.

Technology Development ($2.7M)

- Conducted and completed prototype gravity gradiometer system field trials and technical data package.
- Conducted and completed gravity gradiometer modeling and simulation data verification analysis.
- Completed Corral Monitoring System (CMS) prototype and system documentation.
- Initiated system concept, design concept, and prototype technology development for detection, identification, and tracking of ABM treaty related TLI's.
- Initiated new approaches for Wide Area Tracking System (WATS) to detect nuclear weapons and dispersal devices transported on land.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
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Project CA - Strategic Arms Control Technology (cont'd) -

FY 1998 Plans

Technical Assessments ($3.3M)

- Provide treaty compliance assessments and planning support to OUSD(A&T)/ACI&C.
- Provide technical and engineering support to START Treaty commissions (JCIC/BIC).
- Continue research on technologies to support post-START II requirements to monitor mobile delivery systems, non-deployed nuclear weapons and delivery systems, and warhead inventories.
- Determine the potential utility of tagging as a monitoring aid in future strategic arms control regimes.
- Explore "offense/defense" systems differentiation issues and potential future force structure effects posed by START III/IV negotiations.
- Review/assess adjunct monitoring concepts and technologies which could enhance inspector performance in the implementation of current treaties.
- Assess requirements for Arms Control Implementation and Compliance Information System and analytical tools as a basis for future arms control automated systems.

Technology Development ($4.5M)

- Incorporate START II software modifications to support CMTS interface with international data exchange formatting.
- Complete Object Pattern Recognition prototype development.
- Continue Emerging Technologies investigations for future treaty requirements through industry, academia and national laboratories.
- Complete CMTS SCDS documentation and deliver source code.
- Select promising warhead accountancy technologies for vulnerability analysis and further development.
- Begin design and development of ABM/TMD computer analysis models.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711H

CB - Conventional Arms Control Technology - This project covers research, development, test & evaluation (RDT&E) required to: meet on-site and aerial monitoring, transparency, confidence-building, and peacekeeping monitoring technology requirements for existing, emerging, and potential treaties, agreements, and initiatives related to Conventional Arms Control (CAC) and compliance monitoring of peacekeeping regimes; ensure compliance; implement agreements; and provide technical support to negotiations. The funded projects conform to requirements presented and approved by the Office of the Under Secretary of Defense (Acquisition & Technology) through the DoD Arms Control Requirements Assessment Board (RAB) process and described in the Office of the Secretary of Defense (OSD)/Arms Control Implementation and Compliance (ACI&C) Memorandum, dated 31 July 1997, Subject: Guidance, Mission Needs and Summary Requirements. Relevant agreements which require continuing RDT&E support include: (1) the Conventional Armed Forces in Europe (CFE) Treaty, (2) Open Skies (OS) Treaty (projected Entry-Into-Force FY1997); (3) the Organization for Security and Cooperation in Europe (OSCE) Confidence- and Security-Building Measures (CSBMs) contained in Vienna Document 94 (VD-94) to include the Global Exchange of Military Information (GEMI) signed in December 1994 and the OSCE agreements contained in the Lisbon Document of 5 December 1996; (4) the United Nation's Transparency in Armaments (TIA) Agreement established in 1993; and the April 1996 Wassenaar Arrangement on Export Controls for Conventional Arms and Dual Use Goods and Technologies. The RDT&E needs for emerging treaty and agreement areas include: (1) the OSCE Review Conferences, with its OSCE Forum for Security Cooperation (2) the CFE Review Conferences and CFE Adaptation negotiations; (3) regional/sub-regional arms control and peacekeeping to include RDT&E arms control implementation support for the Dayton Agreement and conventional arms proliferation issues; (4) enhancing CSBMs, and (5) the Convention on Certain Conventional Weapons (CCW) and the Anti-Personnel Landmine (APL) negotiations in the Conference on Disarmament and the Ottawa Process. This project also supports U.S. implementation of and compliance with the decisions of consultative commissions, arms control negotiating and coordinating organizations including: the CFE's Joint Consultative Group; the OSCE's Forum for Security Cooperation; NATO's Verification Coordinating Committee and the High Level Task Force; the Conference on Disarmament; the Multilateral Working Group on Arms Control and Regional Security; the Wassenaar Arrangement; and the Open Skies Consultative Commission. Decisions in negotiating fora and by coordinating organizations listed above have resulted and will continue to result in new or revised

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
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CB - Conventional Arms Control Technology (cont'd) - implementation and compliance requirements to which the U.S. must abide. Further, they require technical advice and assessments to support U.S. positions and evaluate proposals to ensure DoD equities are protected. New treaty areas not previously addressed include the APL and expanded regional security and peacekeeping monitoring applications. This project supports the JCS Warfighting Capability of counterproliferation.

FY 1997 Accomplishments

Implementation and Compliance ($8.0M)

- Continued delivery of all baseline Open Skies Management and Planning System (OSMAPS) capabilities; ensured the system complies with all changes to the Open Skies regime and initiated planned modifications.
- Continued baseline OSMAPS independent validation and verification.
- Provided treaty compliance assessments and planning support to OUSD(A&T)/ACI&C.
- Continued support of delivered prototypes, e.g., Synthetic Aperture Radar Open Skies (SAROS), SAROS Processor (SARPRO), Transportable OPS (TOPS), Data Annotation Recording and Mapping System (DARMS) and Data Management and Reporting System (DMRS).
- Provided technical support for SAROS data standardization and implementation of fixed site SAR processor.
- Applied a standard digital format to the Open Skies Infra-Red Line Scanner and Video data.
- Continued assessment of candidate replacement sensors for Open Skies and other aerial monitoring regimes.
- Completed development of CFE Notification Front End System (NOFES) and integrated it into DMNS.
- Initiated update of Compliance Monitoring and Tracking System (CMTS) to comply with decisions of the OSCE Forum for Security Cooperation and the CFE Review Conference.
- Transitioned operational control of Data Management and Notification System (DMNS) to the On-Site Inspection Agency (OSIA).
- Delivered CMTS Version 4.4.
- Conducted concurrent testing of CMTS compliance updates.
- Completed work on an international effort to define and develop an Open Skies Data Bank of information.
- Completed and deployed updated CMTS Open Skies Notification System (OSNS) software to ensure full compliance with Open Skies NOFES formats and concepts.

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CB - Conventional Arms Control Technology (cont'd) -

Continued analyses of new classes of sensors to support aerial observation regimes.

Completed an assessment of APL detection technology focusing on wide area detection.

Initiated assessment of requirements for Arms Control Implementation Compliance Information System and analytical tools as a basis for future automated systems.

Initiated development of interaction arms control and CSBM training tool.

Technical Assessments ($1.2M)

Provided technical support (to include quick turn around and longer term analyses) to the U.S. delegations to the OSCC, the Joint Consultative Group, the CFE Adaptation negotiation, the Forum for Security Cooperation, the APL negotiation, and regional arms control negotiations and prepared to support the FY1998 OSCE Review Conference.

Tested and evaluated a micropower impulse radar for applicability to the implementation of the future or follow-on APL agreement.

Conducted assessments of technologies to support on-going or emerging conventional arms control negotiations (e.g., CCW-APL and CFE Adaptation negotiations.

Initiated technical assessments of regional arms control needs for Central and South America.

Technology Development ($.7M)

Identified technologies and prototypes, including the required replacement of the current U.S. OS Infra-Red Line Scanner to ensure U.S. compliance with emerging or evolving arms control requirements.

FY 1998 Plans

Technical Assessments ($4.6M)

Provide technical support (to include quick turn around and longer term analyses) to the U.S. delegations to the OSCC, the Joint Consultative Group and CFE Adaptation, the Forum for Security Cooperation, the APL negotiation, and regional arms control negotiations.

Provide treaty compliance assessments and planning support to OUSD(A&T)/ACI&C.

Conduct assessments of technologies to support on-going or emerging conventional arms control negotiations and peacekeeping requirements for monitoring and complete assessment of APL agreements needs.

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CB - Conventional Arms Control Technology (cont'd) -

Conduct technical assessment of regional arms control needs for the Pacific Rim.
Continue analysis of new classes of sensors for modification of the Open Skies regime and other aerial observation regimes.
Document and maintain prototypes to support current and future conventional arms control agreements.

Technology Development ($4.5M)

Continue development of a standard digital format for Open Skies digital sensors data.
Complete planned OSMAPS baseline updates, modifications and independent validation and verification of software.
Complete standardization of Infra-Red Line Scanner and Video data formats.
Continue to develop technologies and prototypes to meet U.S. implementation and compliance requirements.
Conduct concurrent independent validation and verification of the development of CMTS software.
Complete documentation of CMTS and deliver source code.
Complete development of interactive arms control and CSBM training tool.
Continue emerging technologies investigations for future treaty requirements through industry, academia and national laboratories.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711H

Project CC - Chemical/Biological Arms Control Technology - This project funds research, development, test and evaluation (RDT&E) necessary to meet DoD requirements for the implementation of chemical and biological arms control agreements and technical analyses to support and protect DoD equities in the negotiation and review of arms control agreements. The DoD requirements are documented in OUSD(A&T)/ATSD(NCB) "Program Guidance, Mission Needs and Requirements Summary", dated 6 February 1997. The primary focus in this project has been and continues to be preparing for multinational verification of, and U.S. compliance with, the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction (CWC). This project develops and validates technologies to ensure that on-site sampling and analysis is effective and that DoD equities are protected during the course of all CWC inspections. The focus is on sample screening, sample preparation and analytical equipment and procedures which are accurate without revealing sensitive DoD information. Technologies developed to support the CWC synergistically support both the U.S.-Russian chemical weapons Bilateral Destruction Agreement and international peacekeeping efforts such as the UN Special Commission on Iraq. In the area of biological weapons arms control, this project provides for technical assessments to assist DoD and U.S. policy makers and negotiators in their efforts to strengthen the Biological Weapons Convention (BWC). These assessments are essential to DoD and U.S. negotiators in the multilateral arena, both in preparation for and subsequent to the BWC Review Conferences (RevCons) held every five years. The RevCons (latest RevCon held December 1996) have the goal of developing measures to strengthen compliance with the BWC; this project supports U.S. policy makers by analyzing and prioritizing proposed confidence-building measures. RDT&E following the RevCons will be essential in continuing this process and ensuring confidence-building is balanced against the need to protect legitimate DoD/U.S. equities. The project also provides technical assessments of transparency measures that are being reviewed for inclusion in a series of planned exchange visits among the US/UK/Russia, in accordance with the 1992 Trilateral Statement; the goal is to resolve ambiguities in compliance with the BWC as well as to promote openness on legitimate military BW defense programs.

This project descriptive plan supports the JCS Joint Warfighting Capability of counterproliferation.

FY 1997 Accomplishments

Implementation and Compliance ($4.6M)

Developed next generation of analytical methods.

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APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711H

Project CC - Chemical/Biological Arms Control Technology (cont'd) -

Provided technical support for Office of the Secretary of Defense (OSD) Host Teams for Organization for the Prohibition of Chemical Weapons (OPCW) inspections.
Supported OSD negotiations in BWC related issues.
Completed validation of Full Operational Capability (FOC) for Chemical Accountability Management Information Network (CAMIN) and conducted independent testing.
Conducted test and evaluation of new commercial-off-the-shelf (COTS) equipment for potential inclusion in the modular lab.
Provided training on CAMIN.
Supported CWC inspection equipment/procedures test & evaluation.
Continued development of on-site sampling and analytical methods.
Continued technical support to OSD (Policy) to establish the U.S. position on and responses to issues raised concerning verification/implementation provisions of the CWC.
Conducted protocol/vulnerability assessment of DoD equities for BWC RevCon proposals for improved compliance.
Provided technical support to activities preparing for the 1996 BWC RevCon.
Updated and maintained Biological Weapons (BW) history database.
Continued technical support to OSD (Policy) on issues related to the Joint Statement of US/UK/Russia on BW.

Technical Assessments ($1.2M)

Continued validation of on-site sampling and analytical methods developed in DSWA programs.
Validated next generation of analytical methods.

Improvements ($.1M)

Developed improved decision algorithm for the Acoustic Resonance Spectrometer (ARS) system to provide greater confidence in identification of unknown chemical munitions.
Developed Quality Assurance/Quality Control protocols for analytical data software.
Completed commercialization of ARS.
Supported application of quality assurance/quality control protocols to CWC software.

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Project CC - Chemical/Biological Arms Control Technology (cont'd) -

Technology Development ($1.3M)

Initiated a comprehensive program for filling CWC-identified on-site inspection technology gaps.

Continued to adapt more advanced spectroscopy technologies that can be used in instruments during on-site sampling and analysis.

Initiated commercialization of Swepts Frequency Acoustic Interferometry (SFAI).

Adapted innovative sensing technologies for potential CWC verification applications.

Initiated commercialization of SFAI.

Initiated engineering development of the hand-held gas chromatography chemical detector.

Initiated project to integrate sampling and analysis components into an on-site laboratory system.

FY 1998 Plans

Technical Assessments ($2.7M)

Continue development and evaluation of on-site sampling and analytical methods.

Continue technical support to CWC Policy Interagency Working Group to establish the U.S. position on and responses to issues raised concerning verification/implementation provisions of the CWC.

Conduct assessments of commercial-off-the-shelf (COTS) equipment for potential use in the On-Site Lab.

Continue protocol vulnerability assessments of DoD equities for BWC AD HOC Committee proposals for improved compliance.

Provide technical support to BW Trilateral Statement Negotiations and Visits.

Provide technical assessments in preparation for BWC National Trial and Trilateral Exchange Visits.

Conduct technical lessons learned assessments following BWC National Trial and Trilateral Exchange Visits.

Expand and maintain BW History and Database.

Assess requirements for Arms Control Implementation Compliance Information System and analytical tools as a basis for future automated systems.

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Project CC - Chemical/Biological Arms Control Technology (cont'd) -
Technology Development ($6.4M)

Conduct technical peer review process of analytical methods and other papers and issues pertaining to sampling and analysis.
Evaluate emerging sampling, sample preparation, and analytical technologies to meet CWC-identified technology gaps.
Continue to adapt more advanced spectroscopy technologies to improve on-site sampling and analysis.
Continue engineering development of the hand-held chemical detector.
Support CWC inspection equipment/procedures test & evaluation.
Continue developing analytical data software for CWC-specific equipment.
Initiate Phase II Analytical Software development.
Support commercialization and provide improved sensitivities to flow injection trace gas analyzer for lewisite monitoring.
Support commercialization and provide improved algorithms in the SFAI.
Continue emergency technology investigations for future treaty requirements through academia, industry and national laboratories.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711H**

Project CD - Nuclear Arms Control Technology - This project consists of research, development, test and evaluation (RDT&E) activities required to provide a comprehensive and integrated DoD research and development program to support preparation, implementation, compliance, and verification of the CTBT. This project is consistent with the direction given December 1995 by the Deputy Secretary of Defense (Implementation of the Comprehensive Test Ban Treaty), May 1996 by the Under Secretary of Defense for Acquisition and Technology (Revised Arms Control Treaties and Agreements Planning Assumptions) and the August 1996 Program Decision Memorandum 1 that describes funding for CTBT safeguards support and funding required for CTBT entry-into-force.

The CTBT arms control activities are the following:

U.S. CTBT International Monitoring System (IMS) Sensors-- The Treaty will require the U.S. to contribute 40 stations to the IMS . This funding supports R&D, implementation, operations, and maintenance for the 24 stations not covered under funding from other sources.

CTBT International Data Center (IDC)-- In the CTBT negotiations, the U.S. committed to develop, prototype and transition to the CTBT international organization an International Data Center which would have the capability to acquire, archive, process and analyze data from approximately 320 sensor stations positioned around the globe, and to disseminate raw data and products to all States Parties. The IDC will serve as the central data processing hub for the Treaty verification regime, and will be located in Vienna, Austria, at the headquarters of the CTBT international organization. The IDC will be critical for supporting U.S. objectives for CTBT compliance and global monioring.

U.S. CTBT Interface-- The U.S. must develop, integrate, test, evaluate, operate and maintain an interface to the international CTBT organization to support routing of data between U.S. facilities and the IDC; to support the U.S. National Authority in the execution of Treaty-related exchanges and decisions; and to function as a backup data archive, and research analysis center. This funding supports initial prototyping of the interface.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711H**

Project CD - Nuclear Arms Control Technology (cont'd) -
Monitoring Safeguards RDT&E-- The U.S. agreement to a zero-yield CTBT is contingent upon the capability to independently monitor nuclear activities worldwide. Understanding, processing and analyzing monitoring data and providing actionable information based on these data and products will require significant basic research and exploratory development in the areas of seismic, hydroacoustic, infrasound, and radionuclide monitoring. This RDT&E work has no parallel in other arms control treaties; this Treaty requires an understanding of geophysical and physical phenomena that have not yet been studied or understood for any other purpose. The objectives of the R&D program are to enhance monitoring capabilities to meet current CTBT standards at decreasing cost over time.

Implementation/Compliance Support-- Measures are identified within the Treaty language to minimize the number of frivolous OSI requests and to maximize the early resolution of events of concern. A regular procedure for reporting large conventional explosions so that the signals detected do not raise suspicions will greatly reduce the number of OSI requests, and consequently the cost of participating in the Treaty. When events occur which cannot be resolved through confidence-building measures or consultation and clarification, U.S. decisionmakers must have the ability to react appropriately and in a timely fashion for both offensive situations (where the U.S. suspects a Treaty violation), and defensive situations (where the U.S. is challenged by another State Party over an ambiguous event). This funding supports initial prototyping of the decision systems and databases needed to address these issues.

FY 1998 Plans
U.S. CTBT IMS Sensors ($9.1M)
- Replace Wake Island hydroacoustic station.
- Procure and install infrasound stations.
- Install aerosol samplers at four radionuclide stations.
- Install required seismic stations and provide needed upgrades to existing seismic stations.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711H**

Project CD - Nuclear Arms Control Technology (cont'd) -

CTBT IDC ($32.5M)

Integrate proven seismic, hydroacoustic, infrasound, and radionuclide data exploitation techniques into the automated and interactive systems.

Deliver limited IDC components to support initial operation and operational testing in Vienna.

Operate in parallel the interim and provisional IDCs.

Draft software manuals.

U.S. CTBT Interface ($3.8M)

Begin tests with PrepCom to demonstrate initial operating capability and to support data communication and backup data archive and analysis capability.

Monitoring Safeguards RDT&E ($6.0M)

Derive new methods for enhancing detection, location, screening and identification for seismic, oceanic and atmospheric events.

Develop computerized, rapidly running techniques/algorithms to detect, locate, and identify optical signals from operational systems.

Develop improved understanding of source phenomenology and propagation for events near detection threshold.

Implementation/Compliance Support ($3.5M)

Develop the types of information to be presented to policy/decision makers.

Initiate database development for treaty-required information exchanges.

Conduct implementation and compliance assessments on selected CTBT issues.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711H**

B. Program Change Summary

	FY1997	FY1998	FY1999
Previous President's Budget	25.5	81.4	50.2
Current President's Budget	25.3	80.8	0.0

Change Summary Explanation:

In accordance with the November 1997 Defense Reform Initiative, resources for FY 1999 and out which were previously addressed in this PE have been transferred to PE 0603711BR.

C. Other Program Funding Summary.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
0603711BR Verification Technology Demonstration	0.0	0.0	63.1	60.4	59.3	55.9	55.5

DEFENSE THREAT REDUCTION AND TREATY COMPLIANCE AGENCY

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Def Threat Red & Treaty Compln Agency
FY 1999 RDT&E Program Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
18	0602715BR	WMD Related Technologies	2			203,598	U
		Applied Research				203,598	
27	0603160BR	Counterproliferation Support - Adv Dev	3			70,611	U
34	0603711BR	Verification Technology Demonstration	3			63,052	U
		Advanced Technology Development				133,663	
107	0605128BR	Classified Programs	6			13,755	U
109	0605160BR	Counterproliferation Support	6			9,874	U
		RDT&E Management Support				23,629	
Total		Def Threat Red & Treaty Compln Agency				360,890	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE February 1998			
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Applied Research - BA2					R-1 ITEM NOMENCLATURE WMD Related Technologies; 0602715BR			
COST (In Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete
Total 0602715BR Cost	0.0	0.0	203.6	206.6	209.7	212.7	215.9	Continuing
Project AB Test & Simulation Technology	0.0	0.0	53.3	52.8	49.7	50.1	50.4	Continuing
Project AC Weapon Systems Lethality	0.0	0.0	37.3	37.4	37.5	37.9	38.2	Continuing
Project AE Weapon Safety & Operational Support	0.0	0.0	30.8	32.0	35.2	35.5	36.2	Continuing
Project AF Weapon System Operability	0.0	0.0	47.8	49.6	52.4	53.3	55.1	Continuing
Project AG Scientific Computations & Information Systems	0.0	0.0	20.2	20.5	20.5	20.9	20.4	Continuing
Project AI Hard Target Tunnel Defeat and NTS Sustainment	0.0	0.0	11.8	12.5	12.8	12.9	13.4	Continuing
Project AL Classified Program	0.0	0.0	2.4	1.8	1.6	2.1	2.2	Continuing

A. Mission Description and Budget Item Justification

This program develops the technology base needed to support national security issues relevant to nuclear and other advanced weapons and force application technologies. Program initiatives include the development, upgrade, and maintenance of advanced nuclear weapons effects simulators to address weapon systems operability issues; conventional weapon targeting and strike planning tools for regional contingencies; battle damage prediction/assessment of conventional strikes against fixed hardened facilities; and predictive models for dispersion and transport of hazardous particles generated by attacks of Weapons of Mass Destruction (WMD) facilities. These projects also serve to support sustainment of a core nuclear competence in the national industrial base. Efforts encompass:

-Support for national security policy implementation.
-Support to CINCs in nuclear force structure, logistics, operations and stockpile programs.
-Quantitative assessments of nuclear weapons systems with development and maintenance of nuclear weapons system safety databases.

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Mission Description and Budget Item Justification (cont'd)

-Development, upgrade, and operation of simulators (radiation, blast, thermal, radio frequency propagation and optical/infrared background effects) to characterize operability of military systems during and after exposure to nuclear disturbed environments.
-Physical and functional characterization of hardened underground structure designs and associated vulnerabilities.
-Determination of nuclear and conventional weapons effectiveness against fixed targets. Emphasis is on targeting technical support, hard target kill criteria, and damage assessment methodologies.
-Utilization of weapons effects information to support development of adaptive targeting methodologies.
-Support of high-performance computing capability to maintain and upgrade the Agency's predictive codes in radiation hydrodynamics, structural dynamics, and electromagnetic propagation supporting nuclear and conventional weapon system lethality, operability, and safety assessments.

The 6.2 programs under this Program Element (0602715BR) are divided into seven projects. It should be noted that information concerning Project AL is classified per DoD Directive 0-5205.7, Para B.2.f.

The November 1997 Defense Reform Initiative (DRI) directed the establishment of a Defense Threat Reduction and Treaty Compliance Agency (DTR&TCA) effective 1 October 1998. As a result of the DRI, resources for FY 1999 and out which were previously addressed in Defense Special Weapons Agency Program Element (PE) 0602715H have been transferred to this PE.

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Project AB - Test & Simulation Technology - Development of effective, survivable, and affordable weapon systems requires a robust testing and simulation capability to support acquisition managers and decision makers. This project develops, provides and maintains unique DoD test and simulation facilities and enabling technologies that are used by the Defense Agencies, the Services and other federal agencies to evaluate the impact of hostile environments from conventional, nuclear and other special weapons on military or civilian systems and targets. These facilities provide blast, thermal, electromagnetic pulse, ionizing radiation and radio frequency propagation environments and testbeds to support DoD and national test requirements. This project leverages fifty years of testing expertise to investigate weapons effects and target response to a spectrum of hostile environments that could be created by proliferant nations or terrorist organizations with access to advanced conventional weapons or weapons of mass destruction (nuclear, biological and chemical).

The project includes the upgrade of existing simulators to extend their utility and life, the decommissioning of obsolete simulators, and the development of new simulators, when required, to compensate as much as possible for the lack of underground testing (UGT). Additionally, it provides the innovative, enabling technologies that make simulator enhancements and new facilities technically feasible and cost-effective. Specific programs in this project include: based on user test requirements, maintain two existing test centers - one at PRIMEX Physics International in San Leandro, California and one at Arnold Engineering Development Center (AEDC) in Tullahoma, Tennessee, including the development, construction and checkout of the new DECADE x-ray facility; development of technologies to provide enhanced radiation sources on the DECADE simulator; development of communications and radar propagation effects simulators, and infrared and optical scene generators; partnership with Sandia National Laboratories (DOE) to develop technologies in energy storage, power flow, plasma switches, debris shields, and radiation sources that are applicable to stockpile stewardship and DoD strategic systems sustainment; characterization, optimization and operation of the Large Blast/Thermal Simulator (LB/TS) at White Sands Missile Range (WSMR), including the demonstration of a non-ideal airblast simulation capability; operation and maintenance of the ARES electromagnetic pulse (EMP) facility at Kirtland AFB; and target defeat assessments for precision-guided and special weapons against Weapons of Mass Destruction (WMD) related targets.

The project provides test beds for full- and sub-scale tests that focus on weapon-target interaction with fixed hardened facilities to include hardened aboveground bunkers, cut-and-cover facilities and deep underground tunnels. This effort supports the Services'

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Project AB - Test & Simulation Technology (cont'd)

requirements for hard target defeat testing and emphasizes teaming with the Services to assess weapon-target interaction of existing and developmental weapon systems. Specific activities include test bed design and construction, instrumentation and data collection, test coordination and execution, and post-test analysis and documentation.

This project relies on hardening and simulation technologies [Testable Hardware and Aboveground Testing(AGT)/UGT Correlation] funded under Project AF and supports the evaluation of weapons lethality accomplished in Projects AC and AI. Funded programs support JCS Joint Warfighting Capabilities: Control Space, Counterproliferation, Discriminate Attack, Global Reach and Situational Awareness, and also provide support to STRATCOM, EUCOM, USFK (PACOM) and ACOM.

FY 1999 Plans

Test & Simulation ($20,831K)

- Continue to respond to emerging user testing needs through R&D upgrades.
- Begin process of transferring user test support technologies to AEDC.
- Continue to provide high explosive simulation infrastructure and test support, and maintain Permanent High Explosives Test Site facility at WSMR and Chestnut Site at Kirtland AFB.
- Complete Radar Nuclear Effects Corruption and Simulators (RNECS) development for National Missile Defense (NMD) and begin initial operational tests.
- Develop advanced optical scene generation/projection and mitigation techniques for Theater Missile Defense (TMD) Ground-Based Radar (GBR) in a nuclear-disturbed environment and provide advanced SATCOM/UEWR Simulation Test Support to assess NMD architecture operability.
- Continue communication/radar atmospheric effects simulator participation in operability assessment/warfighting exercises.
- Evaluate NMD GBR for operability and continue advanced SATCOM Simulation Test Support to MILSTAR and Global Positioning System upgrades.

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Project AB - Test & Simulation Technology (cont'd)

Complete evaluation of NMD target acquisition and tracking algorithms against improved NODDS IR scene and evaluate for fusion with RNECS.

Complete modifications to LB/TS for blast and thermal diagnostics. Test one Navy ship decking and six Israeli tactical systems.

Weapon/Target Interaction ($9,112K)

Develop and validate tunnel targeting capability at system component level.

Continue to construct and rehab test target facilities, provide utilities, maintain the construction capability infrastructure, and execute tests needed for the Counterproliferation, Hard Target Defeat and Hard and Deeply Buried Target programs. Complete tunnel testbed facility outfitting.

Continue to develop signature requirements and munitions effectiveness assessment for hard target defeat. Collect operational signatures from tunnel testbed facility.

Begin rehab of industrial targets for the assessment of WMD Component damage, target response, and collateral effects for conventional weapons and enhanced payloads.

Radiation Simulators ($23,372K)

Continue DECADE preplanned product improvement program for power flow technologies to support high-fluence, soft x-ray and high-dose and dose-rate bremsstrahlung capabilities and evaluate the need for a second DECADE module.

Initiate improved radiation source spectral diagnostics development.

Continue to operate the Double EAGLE, Pithon, MBS, DM1/DM2, and ACE-4 simulators in support of customer testing and DECADE R&D.

Complete close-out of the High Power Microwave Simulator and Fast Rise EMP Simulator.

Continue advanced, high-fluence, soft x-ray and high-dose and dose-rate bremsstrahlung for DECADE Quad application.

Demonstrate >100cm^2 debris shields for the DECADE Quad.

Continue development of a portable, compact, high-fidelity prototype simulator.

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Project AC - Weapons Systems Lethality - Building upon core nuclear competencies in nuclear effects and target response, this project addresses the lethality of the full spectrum of weapons, including nuclear and advanced conventional weapons, against the target base of today and tomorrow -- ranging from ultra-hard underground facilities to above ground, unhardened surface facilities and other special facilities that may be associated with the production, storage or deployment of weapons of mass destruction. Helping to maintain the continued effectiveness of the nuclear deterrent, this project also seeks to provide decision makers and warfighters expanded conventional weapon options against well-protected, high-priority targets. The program relies extensively on advanced numerical methods, as well as laboratory scale experiments, intermediate and full-scale field tests and operational test data to quantify functional and physical damage criteria and collateral effects. Project results will be provided to operational planners through analytic prediction tools, multimedia hypertext databases, and technical manuals. Central to this support is an automated expert system to assist in pre-strike target planning and post-strike battle damage assessment. Technology developed in this project will also enable civil agencies to assess engineering designs to mitigate direct and collateral damage from terrorist attacks such as occurred at the Oklahoma City Federal Building and Khobar towers attack in Saudia Arabia. Additionally, the technology developed directly supports force protection issues, operations other than war and DoD support to civil authority.

On a broader scale, improvements in weapon effects and target response codes will be used to upgrade and expand physics-based modeling and simulation. These improved codes include: coupled finite difference-finite element codes, structure-medium interaction codes, groundshock propagation codes suitable for jointed and/or layered media and high resolution dynamic codes capable of predicting the transport of hazardous aerosol clouds over complex terrain. The understanding of weapon-target interaction resulting from this project will support the generation of weapon system requirements for the changing worldwide target base and provide a quantitative basis for planning contingency operations against high value targets. It will also improve the understanding of target/weapon interactions and their consequences for battle damage prediction and assessment. This project also includes the development of high power electromagnetic source technology for warfighter applications.

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Project AC - Weapons Systems Lethality (cont'd)

Project AB, Test & Simulation Technology, provides the testbeds to support weapons lethality tests in this project. The computer tools and databases developed under this project support the execution of Project AI. This project supports the following JCS Joint Warfighting Capabilities: Counterproliferation, Discriminate Attack, Global Reach, and the Hard Target Defeat Program.

FY 1999 Plans

Nuclear Weapons Effects Phenomenology ($7,742K)

- Distribute completed volume 2 of Nuclear Weapon Manual & Output Handbook. Complete advanced technical threat volume.
- Deliver SHAPE/NATO integrated nuclear Munitions Effects Assessment (MEA)/Hazard Prediction Assessment Capability.
- Deliver STRATCOM microphysics based fall out model.
- Complete analysis of the geology of three additional sites.

Technical Information ($1,247K)

- Complete and demonstrate integrated nuclear weapons effects computational aids.
- Update chapters 2 and 3 of Effects Manual-1 (EM-1).

Application of Nuclear Weapons Expertise ($16,341K)

- Construct brassboard compact power sources.
- Conduct high-level testing of compact power distribution source prototype.
- Define the vulnerability of nuclear reactors and nuclear reprocessing facilities to advanced conventional weapons effects.
- Complete development of substrate conduction, an innovative protection technology effective against all EM threat frequencies.
- Participate in advanced technology demonstration with the Navy.
- Apply High Power Microwave (HPM)/EM hardening technology to a warfighter system.
- Complete key technologies for an advanced long pulse HPM solid-state source.

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Project AC - Weapons Systems Lethality (cont'd)

Weapon/Target Interaction ($10,300K)

Develop vulnerability/collateral effects tools for uranium mining/milling facilities module and transport model including effects of rainout/washout.

Provide technical support, hardware/software to integrate weapons effects, target response codes in distributive interactive environment.

Develop 3-dimensional, real-time visualization of targets with variable damage levels from physics-based weapon effects.

Implement joint service component vulnerability model into the MEA.

Conduct functional defeat tests on systems.

Produce a final CD-ROM version of Revision 1 of the Design and Analysis of Hardened Structures (DAHS) manual.

Continue penetration testing into rock, weathered rock, and hardened structures using advanced concept weapons.

US/Allied Survivability and Operability in Nuclear/Special Weapon Environments ($270K)

Update analysis tool for STRATCOM to assess aircraft dust survivability for planned SIOP routes.

Test and Simulation ($1,354K)

Validate height-of-burst airblast environments for models used in the STRATCOM PDCALC tool using advanced Adaptive Mesh Refinement (AMR) computational code.

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Project AE - Weapon Safety and Operational Support -This project is critical to the maintenance of a safe, secure and reliable nuclear deterrent, given that the enduring stockpile will retain weapons far beyond their designed life. Stockpile support efforts in this project include nuclear weapons stockpile technology for weapon system sustainment, probabilistic risk-based system safety assessments, and nuclear physical security policy/requirements validation. Reliability efforts include participation and assistance to Dual Revalidation, Annual Certification, and the Stockpile Stewardship Program. This project performs research and development in support of nuclear contingency planning, force structure deployment and employment options, innovative nuclear command and control concepts, nuclear mission planning, vulnerability assessments, safety assessments, advanced survivability concepts, and theater missile defense against Weapons of Mass Destruction (WMD) delivery systems and warheads. Vulnerability assessments of DoD and Allied fixed and mobile Command, Control and Communications (C3) assets subjected to WMD effects are also part of this project. This project includes the Modeling and Simulation Center, which provides integration of weapons effects, downwind hazard prediction models and force effectiveness models to users in acquisition, training, exercises, operations other than war, and warfighting. Oversight, technical support and curriculum review for the Defense Nuclear Weapons School (DNWS) and other DoD nuclear training activities are also provided.

This project is in direct support of Presidential Decision Directives and taskings and requirements from OSD, the Joint Staff and CINCs. Relevant directives include National Security Strategy of Engagement and Enlargement, National Security Science and Technology Strategy, National Military Strategy, Joint Strategic Capabilities Plan, Presidential Decision Directives, Defense Planning Guidance, and prioritization memorandums from CINCs. These efforts have been closely coordinated with Joint Staff, OSD offices, CINCs and Services, Department of Energy, Federal Emergency Management Agency and the Federal Bureau of Investigation. The thrust of this project supports the JCS Joint Vision 2010 Warfighting Capabilities of Dominant Manuever, Precision Engagement, and Full-Dimensional Protection.

FY 1999 Plans

Nuclear Operations ($16,957K)

Complete the safety assessment for the dual capable fighter aircraft in Europe in support of nuclear weapon system safety and stockpile safety.

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Project AE - Weapon Safety and Operational Support (cont'd)

Initiate safety assessment for a designated weapon system.

Continue experimental testing to develop a technology base for fuel fire, energetic materials and electrical/lightning.

Initiate experimental testing to develop a technology base for combined mechanical/thermal environments.

Conduct Forces Support technical analyses as required by OSD, Services, Joint Staff, and NWC on nuclear infrastructure, stockpile planning, force structure, storage issues, weapons safety and security, theater missile defense, counterproliferation, planning, and international military and political security issues.

Conduct technical analyses to support CINCs, Services and Joint Staff on operational force planning, counterproliferation, nuclear forces, command and control, and regional security issues in light of the changing international security environment.

Continue the development of the interface between Air Vehicle Planning System (APS) and service planning systems such as Tactical Aircraft Mission Planning System (TAMPS), NATO Nuclear Planning System (NNPS), and US/NATO intelligence systems.

Continue an adaptive planning system software program to develop a deployable strategic planning capability for STRATCOM and initiate a modernized software interface between data collection sources and the Nuclear Planning and Execution System (NPES). Accept and test the first incremental delivery of the NPES.

Initiate study for requirements development to integrate the Air Vehicle Planning System, as the aircraft and cruise missile nuclear planning system, with the NPES.

Complete and transition the nuclear planning system target data feed which provides intelligence planning data in support of NATO.

Complete analytical support assessing STRATCOM's capability to effectively meet national objectives involving the SIOP while reducing its complexity.

Continue utilization of the analytical framework that facilitates alternative WMD deterrence approaches to the needs of multi-regional scenarios.

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Project AE - Weapon Safety and Operational Support (cont'd)

Conduct an annual force-on-force exercise to evaluate and validate policy standards as designated by the Security Policy Verification Committee (SPVC).

Continue to provide quick turn analysis on WMD consequence issues for OSD, Services, and Joint Staff and provide weapons effects analysis to weapons Project Officer's Groups and weapons modification programs as required.

Continue development of an integrated reporting system for automated reporting of NBC activity and hazard predictions. Provide support to the CINC planning staffs on NBC capability and impacts on warfighting capability.

Continue supporting system assessment and analytical concepts analysis for DoD, JCS, CINCs, and Services.

Develop mission and consequence analysis for HQ Air Combat Command's (ACC's) Agent Defeat Weapon phase studies and Analysis of Alternatives (AOAs).

Education/Training to Maintain Core Competencies ($1,050K)

Provide nuclear operational training support to CINCs, Services, and OSD.

Continue development of general interest DoD nuclear training program.

Continue development, improvement, and integration of course materials for the DNWS.

Support DoD and CINC exercises and wargames with WMD/target response analysis.

Nuclear Weapons Stockpile Management ($750K)

In support of stockpile stewardship and reliability, continue participation in, and support to, the Dual Revalidation program with research, technical analysis, and assessment reports.

Provide technical support and recommendations to OSD, Joint Staff, Services, STRATCOM and other Combatant Commanders related to weapons safety, reliability, and performance.

Continue support to the Annual Certification program and support to the service weapons life-extension programs.

Modeling and Simulation ($4,006K)

Upgrade and refine operations of the Modeling and Simulation Center.

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Project AE - Weapon Safety and Operational Support (cont'd)

Provide an integrated program for analysis and testing of alternate strategies, force employment options and technologies.

Continue to provide technical and operational consequence analysis support for exercises and wargames.

Include WMD use and effects in a joint theater-level simulation.

Implement the Analysis and Assessments program to provide real-time support to Services through enhanced infrastructure, deployment teams, integrated models, and technical support.

Update and refine support database per CINCs, Services, and Joint Staff guidance and continue development of consequence analysis of WMD counterproliferation programs.

Establish permanent (Virtual) presence at the Joint Warfare Simulation Center (JWARS) and Joint Simulation System (JSIMS).

Continue to develop Extended Air Defense Simulation (EADSIM) based scenarios for additional studies to support STRATCOM requests.

Nuclear Weapons Effects Phenomenology ($1,000K)

Transition 36 hour weather forecast modeling capability to the CINCs and Services for use in WMD consequence predictions.

US/Allied Survivability & Operability in Nuclear/Designated Advanced Weapons Environments ($5,645K)

Conduct Balanced Survivability and Integrated Vulnerability Assessments on DoD facilities as tasked by CINCs and DoD Agencies.

Assist CINCs and Intelligence community in target planning against hard and deeply buried facilities.

Conduct integrated vulnerability assessments of defense national infrastructure facilities.

Apply sensor technology for target characterization and battle damage assessments.

Weapon/Target Interaction ($1, 364K)

Develop visualization tools for weapon effects models that are compatible with the High Level Architecture (HLA).

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Project AF - Weapon System Operability - Current and future warfighters and weapon systems, including the associated Command, Control, Communications, Computers and Intelligence (C4I) and support systems, must be able to tolerate and operate effectively through a spectrum of hostile battlefield environments. Planned efforts emphasize the development and demonstration of innovative and cost effective technologies to sustain the functional survivability of U.S. and Allied Forces and systems to advanced conventional weapons and limited nuclear attack. The military systems of interest include those that support warfighting missions in the air, on land, at sea, or in space.

This project constitutes the DoD's residual science and technology expertise in nuclear and related survivability matters. It develops and demonstrates affordable strategies and hardening technologies for U.S. systems; transfers the technical products to acquisition program offices; conducts component, subsystem, system and end-to-end performance tests and assessments as requested by the Services and CINCs; and provides support to the Office of the Secretary of Defense on technical and policy matters that relate to the acquisition of survivable systems and strategic system sustainment. Specific programs in the project include: development and demonstration of the enabling technologies for ensuring the continued availability of special materials and radiation tolerant microelectronics and photonic devices; development and demonstration of affordable hardening and mitigation methods that treat the adverse effects from electromagnetic, natural space and nuclear weapons engendered radiation (i.e., ionizing radiation and displacement damage), nuclear electromagnetic pulse (EMP), high power microwave (HPM) and nuclear atmospheric environments; direct support to warfighters by predicting and quantifying the operational impact of nuclear, biological and chemical (NBC) and conventional battlefield environments on systems and personnel; development and demonstration of cost effective system design and test certification techniques for testable hardware that does not require underground nuclear tests; methods for measuring and increasing soldier effectiveness on NBC battlefields; performance and cost analysis to support the Defense Acquisition Board; and joint efforts with system program offices to apply the Agency's expertise and technologies to specific Service applications.

This project provides the testable system design rules and protocols for users of nuclear effects simulators that are funded in Project AB. It also supports the following JCS Joint Warfighting Capabilities: Information Superiority, Counterproliferation, Electronic Warfare, and Precision Force.

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Project AF - Weapon System Operability (cont'd)

FY 1999 Plans

Nuclear Weapons Effects Phenomenology ($10,889)

Complete new fireball model initialization and faster running grid chemistry models.

Test, document and deliver Initial Space environmental prediction Model.

Complete preliminary EMP Vulnerability Number (VN) product.

Demonstrate and enhance human response models.

US/Allied Survivability & Operability in Nuclear/Special Weapon Environments ($19,527K)

Finalize configuration control electronics database for qualification testing.

Begin development of design protocols for advanced optical systems.

Begin development of draft design and test protocols for reentry vehicles.

Complete Aboveground Test (AGT)/Underground Test (UGT) threat correlation for penetration aids, missile and reentry vehicle materials/structures.

Finalize sensor design and test protocols.

Complete development and assessment of low-level radiation standards and equipment for NATO.

Evaluate the end-to-end operability of advanced architectures/networks in nuclear-disturbed environments.

Continue to assess Space Based Infrared Satellite (SBIRS) architecture operability, and evaluate the vulnerability of C4I systems exposed to nuclear-disturbed environment.

Continue application of innovative, low-cost EMP/HPM hardening technology and propose candidate Electromagnetic standards and guidelines in accordance with the new technology.

Continue assessment and testing of critical, fixed-ground-based and mobile C4I facilities.

Gather and assess warfighter Survivability needs and concerns. Incorporate and demonstrate Survivability Simulation Planning System.

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Project AF - Weapon System Operability (cont'd)

Radiation-Tolerant Microelectronics, Materials, and Electro-optics ($17,369K)

Demonstrate, test and evaluate a radiation-tolerant, low-power 500K gate array for USAF.

Demonstrate, test and evaluate radiation-tolerant, 16M Static Random Access Memory integrated circuit technology for USAF and BMDO.

Demonstrate, test and evaluate application-specific integrated circuits, including a digital signal processor for USAF and BMDO.

Demonstrate radiation-tolerant photonics technology for DoD space-based applications.

Investigate and characterize single event effects in photonic devices and deep-submicron microelectronics for USAF and BMDO.

Demonstrate radiation-tolerant Electronic Design Automation (EDA) System for USAF and BMDO.

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Project AG—Scientific Computations & Information Systems. This project provides High Performance Computing (HPC), computational databases, information products, and advanced numerical models that enable the Agency's customers, researchers, and RDT&E contractors to answer questions about nuclear and advanced special weapons effects. Models, codes, and information products are developed to aid the design of experiments, predict types and levels of measurements required, establish system design requirements, assess performance, and provide system-specific predictions of weapons effects to DoD planners. Nuclear issues often require use of advanced computational resources, e.g., for investigation of the physics of weapon-target interactions, and for extrapolating test results into areas for which tests are no longer possible. This has required the development of a world-class high performance computing architecture with high bandwidth communications. This capability, currently with a hub at Los Alamos National Laboratory, is scheduled to transition to the new DoE and DoD HPC architecture over the FYDP. The Data Archival and Retrieval Enhancement (DARE) information system (a digital archive and retrieval system tailored to the specific needs of the researcher, the system designer, and developer) is supported by this project. This project funds the "Graybeard" efforts for collection of unique and potentially perishable nuclear data with appropriate prioritization based on technical value. The principal thrusts respond to warfighter requirements for survivable systems and effective weapons in the Joint Warfighting Technology Areas of Discriminate Attack, Global Reach, and Counterproliferation.

FY1999 Plans

Nuclear Weapons Effects Phenomenology ($7,469K)

- Continue review/commentary/archival of electronics/environmental test data.
- Initiate Graybeard knowledge capture efforts for thermomechanical and biological effects.
- Provide scientific and technical information services and products as the DoD-wide repository for test photos, films, data, test records and other information products.
- Continue computer operations support by providing centralized CRAY resources to researchers, Agency customers and RDT&E contractors.
- Continue operation of web site providing radiation response of electronic parts.

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Project AG—Scientific Computations & Information Systems (cont'd)

Complete high-altitude nuclear effects data commentary/archival.
Initiate transient radiation effects on electronics data review/commentary/archival.
Continue review/commentary/archival of airblast, cratering, ejecta, dust and fallout test data.
Initiate review/commentary/archival of nuclear effects test data for thin-film optics.
Initiate review/commentary/archival of biological nuclear weapon effects test data.
Continue DATACOM computational support by providing wide area connections.
Disseminate Science and Technology Digest.
Review, approve, and archive perishable nuclear test data.
Coordinate draft update The Effects of Nuclear Weapons prior to distribution.

Infrastructure ($7,408K)

Continue computational support by providing annual support for the communication network and upgrade/acquire the supercomputing equipment for the data center.
Provide classified access channels for the data center.
Acquire file storage for classified systems.
Continue assessment of circuit utilization and the investigation of new communication and networking technologies.
Continue to provide broad based science and technology Information Analysis Center research support.

Data Archival and Retrieval Enhancement (DARE) ($4,491K)

Expand archival of information and knowledge of nuclear weapons, other WMD and Agency mission areas for retrieval in DARE as outlined in DARE Master Plan.
Continue development and testing implementation of computational adjuncts and system enhancements which provide greater search, retrieval, storage and analysis capability to the DARE customer.
Provide and continue development of on–line video/text capability and other innovative knowledge enhancement and preservation tools.

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Project AG—Scientific Computations & Information Systems (cont'd)

Application of Nuclear Weapons Expertise ($668K)

Complete validation of Advanced Numerical Methods. Compare results to precision test data.

Perform large-scale analysis of incendiary warheads to support demonstration testing.

Weapon/Target Interaction ($200K)

Develop a 3D atmospheric code with column physics based on the Adaptive Mesh Refinement code.

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Project AI - Hard Target/Tunnel Defeat & Nevada Test Site (NTS) Sustainment

The United States and its allies face a growing threat related to critical military targets hidden within and shielded by hardened, deeply buried tunnel complexes which house battle management facilities, command, control, and communications facilities, theater ballistic missiles and their transporter-erector-launchers (TELs), and biological/chemical/nuclear weapons production or storage facilities. An objective of this program is to examine the existing U.S. and Allied capabilities to hold hardened, deeply buried tunnel targets at risk, thereby defining a current performance baseline. Any deficiencies will be identified and the ability of planned systems to address these deficiencies will be assessed. Finally, new technologies needed to mitigate remaining shortfalls will be evaluated as candidates for new hard target defeat acquisitions. Activities respond to priorities by the Office of the Under Secretary of Defense for Acquisition and Technology (OUSD(A&T)), Hard and Deeply Buried Target Defeat Capability Initiative and warfighting CINCs. Efforts in this program provide part of the technology base needed for counterproliferation activities conducted in other DoD programs.

The Presidential Decision Directive (PDD) on Stockpile Stewardship implemented an indefinite moratorium on underground nuclear testing while requiring retention of the capability to resume testing at Presidential direction. DoD has complied with this policy by realigning the previously existing underground test program to emphasize non-nuclear weapons test technology and facility development, and to conduct a program for an orderly decommissioning and mothballing of the national underground nuclear test assets. The following major tasks will satisfy this requirement: (1) continue test complex shutdown, and tunnel stabilization and preservation; (2) continue environmental characterization; (3) document testbed design and construction methodology; (4) maintain underground test readiness through joint test organization activities at NTS including counterproliferation and hard target defeat testing; and (5) support SOCOM efforts to develop tactics and techniques for JCS Joint Warfighter Capabilities of Discriminate Attack and Counterproliferation. Project AI is linked to Project AB, through which its testing is conducted, and to Project AC which leverages its weapons work.

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Project AI - Hard Target/Tunnel Defeat & Nevada Test Site (NTS) Sustainment (cont'd)

FY 1999 Plans

Weapon/Target Interaction ($4,687K)

Continue support for USD(A&T)'s Hard and Deeply Buried Target Defeat Capability program.
Evaluate weapon/target interactions for new weapons concepts, enhanced payloads, and target fragility.
Collect and evaluate target and event signatures for surveillance.
Begin planning activities for C3I tunnel target.
Complete field tests on blast/fragmentation/fire damage to target subsystems, including blast doors, vehicles and equipment.

Bomb Damage Assessment ($500K)

Continue target reconstitution studies and model development for incorporation in Munitions Effects Assessment tunnel module.

Test and Simulation ($6,660K)

Continue NTS infrastructure maintenance through activities at NTS in support of environmental remediation.
Continue providing on-site personnel to evaluate environmental remediation requirements of Agency facilities.
Maintain one tunnel complex in support of the stockpile stewardship program.
Complete construction of a missile tunnel facility test tunnel.
Continue site characterization and risk evaluation for the N-Tunnel Drums site.
Begin site characterization drilling and sampling at 16-Tunnel Portal Tanks and Spills site, the Area 12 Conditional Release Storage Yards, Area 12 Spills site, and N-Tunnel Muckpile.

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B. Program Change Summary

	FY97	FY98	FY99
Previous President's Budget	0.0	0.0	0.0
Current Budget Submit/President's Budget	0.0	0.0	203.6

Change Summary Explanation:

In accordance with the November 1997 Defense Reform Initiative, resources for FY 1999 and out which were previously addressed in PE 0602715H have been transferred to this PE. The budget request represents a highly leveraged science and technology program, consistent with departmental strategic objectives. Fiscal realities have necessitated reductions in a number of program areas, however, to include the termination of future work on the Electro Thermal Chemical (ETC) gun program.

C. Other Program Funding Summary

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
0602715H Defense Special Weapons Agency	189.2	203.7	0.0	0.0	0.0	0.0	0.0

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Counterproliferation Support-Advanced Development; 0603160BR**

COST *(In Millions)*	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete
Total 0603160BR Cost	0.0	0.0	70.6	68.1	64.2	65.0	66.3	Continuing
Project P535 SOF Counterproliferation Support	0.0	0.0	15.7	18.2	16.7	16.6	16.9	Continuing
Project P539 Counterforce	0.0	0.0	54.9	49.9	47.5	48.4	49.4	Continuing

A. Mission Description and Budget Item Justification - In August 1994, DoD established the Counterproliferation Support Program specifically to address the DoD shortfalls in counterproliferation operational capabilities documented in the May 1994 Report to Congress titled *Report on Nonproliferation and Counterproliferation Activities and Programs*. Counterproliferation Support Program funds are used to leverage DoD acquisition programs to meet the counterproliferation priorities of the Commanders-in-Chief (CINCs) of the Combatant Commands and accelerate the deployment of enhanced capabilities to the field. Specifically, the goal of the Counterproliferation Support Program is to improve specific military counterproliferation capabilities by (1) building on ongoing programs in the Services, DoD agencies, Department of Energy and U.S. Intelligence; (2) focusing on the most critical counterproliferation shortfalls to address major gaps in deployed capabilities (as reflected in the CINCs' priorities and the Counterproliferation Review Committee's (CPRC) prioritized list of counterproliferation Areas for Capability Enhancements); (3) leveraging existing program funding to more rapidly field capabilities by accelerating the deliverables of DoD programs; (4) identifying and enhancing the development of high payoff technologies to accelerate capabilities to the warfighter; (5) identifying and promoting key non-materiel initiatives that complement technological advances; and (6) transitioning Counterproliferation Support Program projects to the Services as soon as practicable.

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Mission Description and Budget Item Justification (cont'd)

The November 1997 Defense Reform Initiative (DRI) directed the establishment of a Defense Threat Reduction and Treaty Compliance Agency effective 1 October 1998. As a result of the DRI, resources for FY 1999 and out which were previously addressed in Program Element (PE) 0603160D8Z have been transferred to this PE.

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Project P535 - SOF Counterproliferation Support: This project enhances U.S. capabilities to prevent or mitigate biological and chemical threats/attacks. The project is divided into two categories: First Responder projects and Special Operations Forces (SOF) projects.

The purpose of the First Responder projects is to quickly leverage DoD biological and chemical response, detection and mitigation technologies to crisis and consequence management response teams such as the U.S. Army Technical Escort Unit (USA TEU), the Navy Defense Technical Response Group (DTRG), the Federal Emergency Management Agency (FEMA), the U.S. Secret Service (USSS) and the Department of Public Health and Safety (PHS). These agencies have concepts of operation or employment doctrines considerably different from Major Theater of War (MTW) based nuclear, biological and chemical (NBC) defense doctrine. These projects are executed in conjunction with the Joint Chiefs of Staff CONPLAN 0300, the Office of the Assistant Secretary of Defense (Special Operations and Low Intensity Conflicts) and the Technical Support Working Group of the National Security Council's Interagency Working Group on Counterterrorism to ensure full interagency coordination of requirements. Specific projects are detailed below.

First Responder Projects:
Chemical/Biological Sentry System (CBSS)--A field portable sensor that can be deployed in civilian settings or venues such as stadiums and parks. Potential users of this technology are the PHS and FEMA.

Biological Detection Kit--Development of a first responder biological detection kit in conjunction with the U.S. Army Medical Research Institute for Infectious Diseases and Navy Medical Research and Development Center. Typical users will be the USA TEU, FEMA, PHS, U.S. Federal Drug Administration, and USSS.

Chemical Agent Recognition Training Aid—Develop a training aid that reproduces the visual and odor signatures and causes common chemical detectors to alert/warn in order to increase the effectiveness of training.

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Project P535 - SOF Counterproliferation Support (cont'd):
The SOF Projects will develop and demonstrate SOF unique devices that enable SOF and special mission units to detect, disable and neutralize Weapons of Mass Destruction (WMD) and their associated facilities under the direction of a geographic CINC in support of CONPLAN 0400. These techniques are leveraged from larger overall DoD programs. Specific details are classified.

FY 1999 Plans
First Responder Projects ($1,381K)
- Chemical/Biological Sentry System (CBSS)—Extend capabilities of system by optimizing chemical sensor technology.
- Detection/Electronic Diagnostics—Continue development of modified x-ray system, initiate development of additional techniques, such as close focus improved low light Night Vision Goggles (NVG) for suspect device inspection and interrogation.
- Neutralization—Assess capability of explosively driven magneto-hydrodynamic generators as a means of defeating very fast firing circuits on explosive devices.

SOF Projects ($14,282K)
- Specific details are classified.

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Project P539 - Counterforce: The purpose of this project is to develop technologies, demonstrate prototype systems in an operationally realistic environment and provide the warfighter with enhanced capabilities in response to current threat projections for potential adversaries who have the capability to develop and/or employ nuclear, biological and chemical (NBC) weapons in future regional conflicts involving the U.S. or its allies. The U.S. requires the capability to identify and characterize NBC research, production, storage and operational support facilities and be prepared to attack and neutralize them while mitigating collateral effects resulting from expulsion and release of NBC agents. The potential target set includes fixed, aboveground and underground hardened and unhardened facilities. The project started in FY 95 and was structured to exploit ongoing technology programs wherever possible. Early project emphasis was applied to efforts to predict and measure target response and dispersion of agents associated with attacks against NBC facilities using existing conventional weapons. Current emphasis is to mitigate collateral effects through advanced weapon development and greatly enhanced deliberate target planning leading to optimized weapon employment. The near-term focus is the demonstration of target planning tools, weapons and sensors supporting direct attacks on an expanded set of NBC targets. In the longer-term, the project emphasis will change to stand-off penetrating weapons, collateral effects assessment and the supporting planning tools. Prototype or modified systems integrating these technologies will then be evaluated in an Advanced Concept Technology Demonstration (ACTD), and a residual operational capability provided to the warfighters.

A second counterforce CP ACTD is approved by DUSD(AT) and is awaiting signature of the management plan. The original CP ACTD has been retitled CP1 ACTD for the first CP ACTD. The second CP ACTD is called the Second Counterproliferation Counterforce Advanced Concept Technology Demonstration (CP2 ACTD). FY 98 is the transition year with CP1 ACTD concluding and CP2 ACTD starting.

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Project P539 - Counterforce (cont'd) -
This project builds on previous Agency projects to develop and mature sensor systems to provide additional capabilities for pre-, trans- and post-attack target characterization, and damage and collateral effects assessments. The project further develops and accelerates capabilities in collateral effects prediction, target/weapon interaction prediction, and funds the integration of these capabilities into Service/CINC target planning systems. The project also builds on Service programs in advanced weapon guidance, penetration and fuze enhancements. Service weapon development expertise will be used to integrate complementary, demonstrated technologies into prototype weapons that can improve prompt response, enhance lethality and control collateral effects. The project milestones are broken into four major product areas or subprojects: sensors, collateral effects, target planning and weapons, plus the operational demonstrations.

Sensors - This effort will provide improved warfighting residual capabilities for facility characterization, battle damage assessment (BDA) and collateral effects assessment against the spectrum of NBC facilities. Research and development is currently in progress to characterize signatures from shallow underground facilities for exploitation by tactical unattended ground sensors (TUGS). Objectives of the current program include development of techniques for source identification, localization, and performing change detection in trans-attack signatures for weapon effectiveness analysis. Current intelligence community (IC) and Department of Energy (DoE) programs involve research and development to assess sensor performance and approaches for optimum sensor application for surface target detection and underground facility detection and characterization. Other project activities include enhancing the performance of existing forward looking infrared (FLIR) sensors and a weapon based sensor to provide high confidence BDA. This sub-project will leverage existing programs to (1) define concept of operations and sensor system (ground, air, and weapon based) architectures for BDA, collateral effects assessment and facility characterization; (2) develop and demonstrate sensor technologies and prototype sensor systems for BDA and facility characterization; (3) produce data fusion and processing module for BDA and facility characterization to meet user requirements on existing platforms; (4) produce an integrated BDA module to support airborne sensors; (5) develop and demonstrate a man-emplaced TUGS system that includes multi-sensor arrays; (6) integrate stand-off and point chemical sensors onto an unmanned air vehicle (UAV) and an expendable mini-UAV, respectively, and demonstrate the ability to confirm, identify, and assess the release of chemical agents in support of attacks on NBC facilities. CP2 ACTD sensors and data fusion will address confirming the presence of chemical agents post attack and assist in predicting transport patterns by updating pre-strike predictions of the potentially hazardous plume with real-time data. The CP2 ACTD sensor program will leverage on-going

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Project P539 - Counterforce (cont'd) - chemical sensor efforts within the chemical and biological defense community to minimize program risk in developing chemical sensors for counterforce missions. This program will also monitor the progress of remote biological agent detectors for potential incorporation into the collateral effects assessment systems.

Collateral Effects - The Collateral Effects program provides predictive tools for NBC expulsion and dispersion resulting from attacks on WMD facilities as well as acts of terrorism and hostile use of WMD for a variety of applications supporting NBC target attack planning. Requirements include high resolution weather models, weather measurement systems, and population databases. A key element in developing these collateral effects codes is chemical/biological expulsion tests and modeling. Modeling of chemical/biological expulsion sources will be based on theoretical model and empirical data. Codes will be validated from existing data, other predictive models and special collateral effects experiments. The collateral effects tools will provide pre-attack prediction and post-attack assessment. The Hazard Prediction and Assessment Capability (HPAC) is a major product that predicts the release and transport of NBC materials and the subsequent collateral effects. The high resolution weather prediction capability, another area of emphasis in the subproject, will provide timely wind, cloud, and precipitation data necessary for NBC collateral effects predictions. Weather data currently does not have the resolution or quality necessary. This weather data will also be available to other users in the theater such as Joint Warning Network (JWARN). These tools will also be integrated into the target attack planning tools to assess the consequences of attacks on WMD facilities.

Target Planning - This effort will provide a new deliberate planning combat assessment capability and a major upgrade for existing theater level planning capabilities for defeating or denying NBC facilities and capabilities. This effort builds upon the Integrated Munitions Effects Assessment (IMEA) planning tool developed for CP1. IMEA provides a forward deployable target planning capability for NBC targets. IMEA is an integration of the Munitions Effects Assessment (MEA) tool providing targeting solutions using conventional weapons for a variety of structures and equipment and the HPAC developed under the Collateral Effects subproject. The current effort will produce the Integrated Target Planning Tool Set (ITPTS) that will provide a spectrum of planning capabilities from deliberate to crisis. ITPTS includes IMEA II and high resolution weather prediction. IMEA II will import target data and import attack assessment data from prior planned strikes. ITPTS will also predict weapons performance and associated NBC collateral effects, develop targeting solutions that minimize collateral effects, and provide the results through the appropriate interfaces for a variety of targets including functionally and structurally complex facilities. The major differences between IMEA and IMEA II

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Project P539 - Counterforce (cont'd) - is a greatly enhanced interface to the Intelligence community and upgrades to handle additional target types including complex facilities, to handle additional weapons and platforms, to provide more operator friendly displays, to import attack assessment data, and to efficiently interface with Service planning systems. The ITPTS interfaces include but are not Limited to Global Command and Control System, the Service targeting and strike execution control systems, strategic and tactical intelligence and sensor systems, the weather community, and the NBC warning system. A key interface for CP applications is with the Tactical Multi-Sensor Fusion (TMSF), providing critical pre- and post-strike target characterization information. The "plug and play" architecture is required to accommodate differing CONOPS, theaters, and performers in several geographic locations. The deliberate planning capability requires significant input from the intelligence community including data regarding NBC facilities, processes, and surrounding populations. This effort will support the intelligence community in developing the necessary interfaces to provide for the efficient transfer of intelligence data. ITPTS will include IMEA II, IMEA II Prime, an advanced wind and weather prediction capability, and a "plug and play" architecture. This effort will execute a full verification and validation program for all delivered capabilities including extensive field testing at all functional levels.

Weapons - Conventional explosive-filled weapons are often relatively ineffective in destroying large underground reinforced concrete facilities. Even if the weapon detonates inside the facility, substantial interior walls and/or floors often confine the blast and fragmentation thus causing significant overpressure and venting through the penetration hole. Likewise conventional explosive-filled weapons often result in complete and uncontrolled destruction of soft buried and aboveground facilities. When these facilities protect NBC, the random use of conventional weapons greatly increases the risk of agent dispersal that may result in extensive civilian or force casualties. This sub-project will develop, integrate and demonstrate advanced conventional weapons technologies to improve mission effectiveness against NBC facilities while mitigating collateral effects. For CP1 ACTD, these technologies include improvements in adverse-weather/precision guidance, enhanced penetrating capabilities, and advanced fuzing options. Technologies that have been successfully demonstrated will be weaponized into prototype systems. Advanced fuzes will enable weapons employment options to maximize lethality and/or control collateral effects. The focus for CP2 ACTD is to provide the warfighter with a demonstrated option to attack NBC facilities in a stand-off mode. CP2 ACTD will improve on existing stand-off weapon platforms to provide enhanced penetration, advanced fuzing, and enhanced payloads that can reduce collateral effects by neutralizing agents before they are released or reducing the amount released. Stand-off weapons to be enhanced include the conventional Tomahawk Land Attack Missile (TLAM-C) and the Conventional Air Launched Cruise Missile (CALCM). Enhanced payloads will explore

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Project P539 - Counterforce (cont'd) - alternate warhead options to conventional blast/fragmentation with the objectives of mitigating collateral effects associated with dispersal of NBC materials while also minimizing the number of weapons required to functionally defeat WMD facilities.

Operational Demonstrations - The Counterproliferation ACTD will improve the operational capability for holding NBC targets at risk with minimum collateral effects. The objective is to integrate available or near-term technologies for sensors, weapons, collateral effects prediction and target planning tools, evaluate the technologies in an operational context, and transition improved capabilities rapidly to warfighters. Specifically, this project will enhance and accelerate existing programs to provide integrated target planning to include collateral effects prediction codes and sensors for facility characterization and BDA, and advanced weapons development programs to meet NBC target defeat requirements. This project will also support demonstration operations to include system operational concept, demonstration planning, scenario development, execution of the ACTD and post-demonstration analysis. Planning and execution of the ACTDs uses a time phased approach to screen candidate technologies for maturity, develop prototype systems and demonstrate enhancements in military capability against a warfighter prioritized subset of all potential NBC target types. This approach results in a cycle of prototype development and testing followed by periods of operational demonstration.

Two operational demonstration series were defined for the CP1 ACTD. The first demonstration, named Dipole Orbit (DO), was successfully completed in February 1997. This first demonstration used new target planning tools to determine the "best" employment of current weapons with a smart fuze against simulated biological agents housed in soft above-ground bermed structures. The second and final demonstration series, named Dipole Jewel (DJ), is scheduled for completion in July 1998. This demonstration will assess improved capabilities in weapons, sensors, and enhanced planning tools against a simulated, hardened chemical weapons production facility in a shallow-buried, cut-and-cover structure. After the start of CP1 ACTD, the sponsoring command identified a need to understand their ability to conduct counterforce operations against soft above-ground simulated chemical production facilities using the TLAM-C. The Dipole Tiger (DT) demonstration series was added as a quick response to the users' request. DT started in April 1997 and will end in FY 98.

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Project P539 - Counterforce (cont'd) - Four operational demonstration series are planned during CP2 ACTD over the period of FY 1999-2002 to provide the sponsor and participating commands with the opportunity to assess the utility of the selected technologies. The objective of the first demonstration series in CP2 ACTD, called Dipole Xeric (DX), is to employ current technology products in weapons and improved target planning tools, using new weapon delivery tactics, and operationally demonstrate their enhanced penetration capabilities against a simulated chemical agent production and storage facility considerably harder than the structure used during CP1 ACTD Dipole Jewel Series. The objective of the second demonstration series, called Dipole Yukon (DY), is to exploit near-term technology by demonstrating the baseline capabilities of the Joint Air-to-Surface Stand-off Missile (JASSM) to conduct chemical/biological (C/B) counterforce missions through operationally realistic attacks against a simulated biological weapons storage facility. The objective of the third demonstration, called Dipole Zodiac (DZ), is to assess the suitability of the CALCM with a penetrating warhead and a Predator UAV-based stand-off sensor providing collateral effects assessment. The objective of the fourth demonstration series, called Divine Canberra (DC), is to evaluate the end-to-end set of products of the CP2 ACTD including the target planning tool, in its final operational context, a TLAM stand-off attack penetrating weapon capability, and remote combat assessment using a small expendable mini - UAV with a chemical point sensor on-board (and deployed from the Predator UAV demonstrated in DZ) against a relatively hard chemical production and storage facility. DC also includes demonstration of a weaponized enhanced payload.

FY 1999 Plans

Sensors ($15,850K)

- Refine hardware and communications design for TUGS.
- Evaluate performance of upgraded remote or standoff chemical agent detectors for the counterforce role, and initiate CONOPS development, data fusion and define Predator UAV interface requirements.
- Complete testing of mini-UAV chemical point sensors for CP counterforce mission.
- Design, configure and fabricate components for combat assessment mini-UAVs and initiate ground and airborne testing.
- Continue design modifications of Predator UAV platform for remote sensing and delivery of mini-UAV.
- Continue Predator UAV sensor system integration and subsystem test and evaluation.

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Project P539 - Counterforce (cont'd) -

Collateral Effects ($8,100K)

Deliver a theater weather server and provide high resolution predictive weather capability for regional operations.

Execute validation tests for Collateral Effects models.

Deliver HPAC 4.0 to support the FY 99 Dipole Xeric ACTD.

Deliver Wet Biological Source Term Model.

Initiate Collateral Effects Urban Transport Model.

Target Planning ($5,500K)

Develop and deliver a comprehensive multiple weapon attack planning capability.

Execute precision sub-system level tests to generate target planning tool validation data.

Complete software architecture development and initiate development of ITPTS.

Develop interface software for ITPTS.

Complete and deliver IMEA 3.2 software to support Dipole Xeric Demonstration.

Weapons ($18,779K)

Design and test ITAG enhancements.

Fabricate and test HTSF hardware for expanded capabilities.

Conduct CALCM penetrator systems design and integration.

Conduct TLAM penetrator systems integration.

Initiate TLAM air-vehicle modification design and fabrication.

Continue smart fuze design to meet Navy certification requirements.

Continue penetrator warhead design, fabrication, and test for TLAM.

Complete scale tests of selected high temperature incendiaries (HTI) and chemical neutralization agents against simulated chemical and biological agents.

Fabricate static test articles for payloads program.

Initiate full scale static tests of selected payloads concepts.

Begin weaponization of selected payloads concept.

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Project P539 - Counterforce (cont'd) -

Continue modeling and simulation to support concept screening and down-select.

Continue development of enhanced weapon lethality models.

Operational Demonstration ($6,719K)

Complete CP1 ACTD analysis/report.

Conduct Dipole Xeric demonstration.

Complete target construction for Dipole Yukon.

Initiate Dipole Yukon demonstration.

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B. Program Change Summary

	FY1997	FY1998	FY1999
Previous President's Budget	0.0	0.0	0.0
Current President's Budget	0.0	0.0	70.6

Change Summary Explanation:

SOF Projects funding increase based on findings recently amplified in the Quadrennial Defense Review (QDR) to increase funding for special operations forces counterproliferation activities; funding increase for CALCM based on findings recently amplified in the Quadrennial Defense Review (QDR) to strengthen U.S. counterproliferation capabilities.

In accordance with the November 1997 Defense Reform Initiative, resources for FY 1999 and out which were previously addressed in PE 0603160D8Z have been transferred to this PE.

C. Other Program Funding Summary. None.

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APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711BR**

COST *(In Millions)*	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete
Total 0603711BR Cost	0.0	0.0	63.1	60.4	59.3	55.9	55.5	Continuing
Project CA Strategic Arms Control Technology	0.0	0.0	9.1	9.9	11.1	11.2	11.4	Continuing
Project CB Conventional Arms Control Technology	0.0	0.0	8.1	7.8	8.0	8.2	8.3	Continuing
Project CC Chemical Weapons Convention	0.0	0.0	10.6	10.6	12.6	12.8	13.2	Continuing
Project CD Nuclear Arms Control Technology	0.0	0.0	35.3	32.1	27.6	23.7	22.6	Continuing

A. Mission Description and Budget Item Justification - This program element covers implementation, compliance, monitoring and inspection, research development test and evaluation (RDT&E) for existing and emerging arms control treaties and agreements. The funded projects conform to requirements presented and approved by the Office of the Under Secretary of Defense (Acquisition & Technology) through the DoD Arms Control Requirements Assessment Board (RAB) process. RDT&E fulfills the technical requirements to implement, comply with, and monitor the following treaties/agreements: the Treaty on the Reduction and Limitation of Strategic Offensive Arms (START); the Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II) (START III); the Anti-Ballistic Missile (ABM) Treaty; the Intermediate-Range Nuclear Forces (INF) Treaty; the Conventional Armed Forces in Europe (CFE) Treaty; the Open Skies (OS) Treaty; the Convention on Certain Conventional Weapons (CCW); the Chemical Weapons Convention (CWC); Comprehensive Test Ban Treaty (CTBT); the CFE Adaptation negotiations; the Anti-Personnel landmine negotiation; Presidential arms control initiatives; and other existing and emerging arms control related agreements, treaties, and initiatives, such as the United Nation's (UN) Transparency in Armaments; the Organization on Security and Cooperation in

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APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711BR

Mission Description and Budget Item Justification (cont'd) - Europe's Vienna Document 94 (VD-94) and the Global Exchange of Military Information (GEMI); Missile Technology Control Regime (MTCR) and the UN's Transparency in Armaments Agreement. It also provides confidence and transparency building capabilities to support DoD efforts concerning the Biological Weapons Convention (BWC), and conforms to the Administration's research and development priorities as related to both conventional arms control and weapons of mass destruction arms control, and disarmament. Arms control technologies are critical for enabling the U.S. to monitor, verify and implement international arms control treaties and other agreements whose purpose is to prevent the proliferation and or reduction of nuclear, chemical, biological, and other advanced conventional weapons. Technical assessments are made to provide the basis for sound project development, to evaluate existing programs, and to provide the data required to make compliance judgments. Technology developments and system improvements projects are conducted to ensure that capabilities to monitor, comply with, and implement treaties and agreements are available when required.

The program includes development of equipment and procedures for data exchanges, on-site and aerial inspections and monitoring, and other confidence-building measures. In addition, assistance is provided to the Office of the Secretary of Defense by providing technical support in preparing for U.S. compliance with treaty obligations. For example, work includes an assessment to determine the susceptibility of a CTBT verification regime to evasive measures. Results will be used by the CTBT negotiators to develop a technically robust International Monitoring System (IMS). Hardware and procedures developed are often transitioned to the On-Site Inspection Agency (OSIA), or appropriate international inspectorate, as in the case of the CWC, for use in conducting treaty mandated inspection and monitoring and for implementing transparency and confidence-building regimes. Where applicable, RDT&E to meet requirements in one treaty area is applied to fulfill requirements in other areas to eliminate duplication of efforts. For example, development of remote monitoring capabilities for future START Treaty applications will also be evaluated for use to verify limits and activities in a future conventional arms control regime. The technologies and procedures developed in the arms control technology program provided an invaluable source of information on equipment and procedures that was extensively used by an Agency team to support an interagency assessment of Long Term Monitoring of Iraq. The results of the effort and equipment developed in this program are being used to implement the provisions of United Nations Resolution 715.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711BR

Mission Description and Budget Item Justification (cont'd) - The Agency's synergistic approach to fulfilling arms control requirements has been maximized in data management development. Arms control treaties require extensive exchanges of data concerning treaty accountable items, initial declarations, movements, etc., by signatory nations. The Agency has developed a treaty information management system, the Compliance Monitoring and Tracking System (CMTS), to accommodate these data exchanges and monitor U.S. compliance with treaty data reporting provisions. The CMTS provides treaty required data exchanges for INF, START, CFE and Confidence- and Security-Building Measures. A DoD system, Chemical Accountability Management Information Network (CAMIN), is under development to create the capability to transmit CWC required data. The Open Skies Notification System (OSNS) is being developed to support an anticipated FY1998 treaty entry-into-force (EIF). Operational control of the CMTS was transitioned to OSIA in a phased approach starting with Data Management/Notification System (DMNS) and START Central Data System (SCDS) in FY1997. The Chemical Weapons Convention Information Management System (CWCIMS) was offered to the Preparatory Commission at the Hague by the United States Government (USG). The Commission accepted the U.S. offer and the system was delivered in late FY1996.

In FY 1999, the architecture for presentation/execution of this program will change. Elimination and realignment of the Implementation and Compliance (I&C) category resulted in all negotiation, compliance, and implementation efforts moving to the Technical Assessments category. All hardware and software developments in I&C have moved to the Technology Development or Improvements category to reflect the actual nature of the effort.

The November 1997 Defense Reform Initiative (DRI) directed the establishment of a Defense Threat Reduction and Treaty Compliance Agency effective 1 October 1998. As a result of the DRI, resources for FY 1999 and out which were previously addressed in Defense Special Weapons Agency Program Element (PE) 0603711H have been transferred to this PE.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711BR

Project CA - Strategic Arms Control Technology - This project consists of research, development, test and evaluation (RDT&E) activities required to provide the capabilities needed to conduct monitoring, inspections, and data exchanges under the Strategic Arms Reduction Treaty (START), START II, START III, Missile Technology Control Regime (MTCR), Safeguards, Transparency and Irreversibility (STI) Agreement, Anti-Ballistic Missile (ABM) Treaty, and the Intermediate-Range Nuclear Forces (INF) Treaty. It also assists the United States Government (USG) and industry in compliance with the treaties and development of technology to meet requirements of future strategic arms control agreements. The projects conform to requirements presented and approved by the Office of the Under Secretary of Defense (Acquisition & Technology), (OUSD(A&T)), through the DoD Arms Control Requirements Assessment Board (RAB) process and OSD/Arms Control Implementation and Compliance memorandum of 31 July 1997, subject: Guidance, Mission Needs and Requirements Summary.

The START Central Data System (SCDS), as part of the Compliance Monitoring and Tracking System (CMTS), enables the U.S. to generate treaty-required notifications, perform treaty compliance assessments, and transmit notifications to treaty states for START. The START II Treaty, signed in January 1993, requires inspections of converted SS-18 silos and authorizes additional re-entry vehicle on-site inspections of Intercontinental Ballistic Missiles (ICBMs) installed in the converted silos. It also introduces new rules for counting strategic forces that complicate START reporting. Tools developed by this program will enable the USG to effectively exercise treaty inspection rights and monitor compliance and reporting. Technology development efforts are planned to support anticipated future treaty requirements in the most non-intrusive and cost-effective manner. Future strategic arms control regimes may consider non-deployed missiles and warheads in all phases, to include conversion and/or elimination, and would require the development of new procedures and equipment to accomplish the monitoring task. The primary focus of the efforts is on more effective methods of measuring characteristic Treaty Limited Item (TLI) signatures with technologies such as object and pattern recognition and micro-machined integrated neutron detector and providing monitoring/inspection capabilities to ultimately reduce cost and increase the flexibility of U.S. inspectors.

Overall RDT&E requirements and implementation timelines are dependent on the desired robustness and implementation schedule for the various components of the verification regime. RDT&E is being initiated now to ensure that monitoring and

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
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Project CA - Strategic Arms Control Technology (cont'd) -
inspection systems are available at treaty entry into force (EIF) and that negotiators have the technical information to make informed decisions on key issues. This project supports the JCS Warfighting Capability of counterproliferation.

FY 1999 Plans

Technical Assessments ($3.3M)

- Provide treaty compliance assessments and planning support to OUSD(A&T)/ACI&C.
- Provide technical and engineering support to START Treaty commissions (JCIC/BIC).
- Continue research on technologies to support post-START II requirements to monitor mobile delivery systems, non-deployed nuclear weapons and delivery systems, and warhead inventories.

Technology Development ($5.8M)

- Incorporate provisions for post-START II nuclear warhead and non-deployed TLI data incorporation (and hardware improvements) into CMTS.
- Initiate remote monitoring prototype development systems.
- Continue modification/enhancement/development of ABM/TMD computer analysis models.
- Initiate development of implementation compliance information system.
- Demonstrate proof of concept for selected warhead accountancy technologies to support START II follow-on.
- Provide follow-on support to WATS OCONUS installation.
- Continue Emerging Technology investigations for future treaty requirements through industry, academia and national laboratories.
- Develop inspection training aids and tools to provide enhanced inspection and monitoring capability in support of START I/II/III treaties.
- Provide solutions to implement future treaty verification/inspection protocols.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711BR

CB - Conventional Arms Control Technology - This project covers research, development, test & evaluation (RDT&E) required to: meet on-site and aerial monitoring, transparency, confidence-building, and peacekeeping monitoring technology requirements for existing, emerging, and potential treaties, agreements, and initiatives related to Conventional Arms Control (CAC) and compliance monitoring of peacekeeping regimes; ensure compliance; implement agreements; and provide technical support to negotiations. The funded projects conform to requirements presented and approved by the Office of the Under Secretary of Defense (Acquisition & Technology) through the DoD Arms Control Requirements Assessment Board (RAB) process and described in the Office of the Secretary of Defense (OSD)/Arms Control Implementation and Compliance (ACI&C) Memorandum, dated 31 July 1997, Subject: Guidance, Mission Needs and Summary Requirements. Relevant agreements which require continuing RDT&E support include: (1) the Conventional Armed Forces in Europe (CFE) Treaty, (2) Open Skies (OS) Treaty (projected Entry-Into-Force FY1997); (3) the Organization for Security and Cooperation in Europe (OSCE) Confidence- and Security-Building Measures (CSBMs) contained in Vienna Document 94 (VD-94) to include the Global Exchange of Military Information (GEMI) signed in December 1994 and the OSCE agreements contained in the Lisbon Document of 5 December 1996; (4) the United Nation's Transparency in Armaments (TIA) Agreement established in 1993; and the April 1996 Wassenaar Arrangement on Export Controls for Conventional Arms and Dual Use Goods and Technologies. The RDT&E needs for emerging treaty and agreement areas include: (1) the OSCE Review Conferences, with its OSCE Forum for Security Cooperation (2) the CFE Review Conferences and CFE Adaptation negotiations; (3) regional/sub-regional arms control and peacekeeping to include RDT&E arms control implementation support for the Dayton Agreement and conventional arms proliferation issues; (4) enhancing CSBMs, and (5) the Convention on Certain Conventional Weapons (CCW) and the Anti-Personnel Landmine (APL) negotiations in the Conference on Disarmament and the Ottawa Process. This project also supports U.S. implementation of and compliance with the decisions of consultative commissions, arms control negotiating and coordinating organizations including: the CFE's Joint Consultative Group; the OSCE's Forum for Security Cooperation; NATO's Verification Coordinating Committee and the High Level Task Force; the Conference on Disarmament; the Multilateral Working Group on Arms Control and Regional Security; the Wassenaar Arrangement; and the Open Skies Consultative Commission. Decisions in negotiating fora and by coordinating organizations listed above have resulted and will continue to result in new or revised implementation and compliance requirements to which the U.S. must abide. Further, they require technical advice and assessments to support U.S. positions and evaluate proposals to ensure DoD equities are protected. New treaty areas not previously addressed include the APL and expanded regional security and peacekeeping monitoring applications. This project supports the JCS Warfighting Capability of counterproliferation.

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CB - Conventional Arms Control Technology (cont'd) -

FY 1999 Plans

Technical Assessments ($4.1M)

- Provide technical support (to include quick turn around and longer term analyses) to the U.S. arms control delegations to the NATO, OSCC, the Joint Consultative Group, the Forum for Security Cooperation, the APL negotiation, and regional arms control negotiations.
- Provide treaty compliance assessments and planning support to OUSD(A&T)/ACI&C.
- Continue analysis of new classes of sensors for modification of the Open Skies regime and other aerial observation regimes.
- Conduct assessments of technologies to support on-going or emerging conventional arms control negotiations.
- Conduct technical assessment of regional arms control needs for the Pacific Rim.
- Conduct technical assessment for stand off APL detection and mapping capability.
- Conduct technical assessments of regional arms control needs.
- Document and maintain prototypes to support current and future conventional arms control agreements.

Technology Development ($4.0M)

- Continue to develop compliance block updates for OSMAPS capabilities and perform independent validation and verification.
- Initiate the development of an extended digital processor to process foreign digital sensor data to ensure treaty required resolution of foreign sensors used in overflights of the U.S.
- Initiate CMTS compliance updates and integration of APL agreement data requirements.
- Begin long range development of follow-on technologies to support implementation and compliance with the future APL agreements.
- Continue CMTS independent verification and validation to ensure efficient development of CMTS software.
- Initiate development of Implementation Compliance Information System and analytical tools.
- Continue Emerging Technologies investigations for future treaty requirements through industry, academia and national laboratories.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711BR

Project CC - Chemical/Biological Arms Control Technology - This project funds research, development, test and evaluation (RDT&E) necessary to meet DoD requirements for the implementation of chemical and biological arms control agreements and technical analyses to support and protect DoD equities in the negotiation and review of arms control agreements. The DoD requirements are documented in OUSD(A&T)/ATSD(NCB) "Program Guidance, Mission Needs and Requirements Summary", dated 6 February 1997. The primary focus in this project has been and continues to be preparing for multinational verification of, and U.S. compliance with, the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction (CWC). This project develops and validates technologies to ensure that on-site sampling and analysis is effective and that DoD equities are protected during the course of all CWC inspections. The focus is on sample screening, sample preparation and analytical equipment and procedures which are accurate without revealing sensitive DoD information. Technologies developed to support the CWC synergistically support both the U.S.-Russian chemical weapons Bilateral Destruction Agreement and international peacekeeping efforts such as the UN Special Commission on Iraq. In the area of biological weapons arms control, this project provides for technical assessments to assist DoD and U.S. policy makers and negotiators in their efforts to strengthen the Biological Weapons Convention (BWC). These assessments are essential to DoD and U.S. negotiators in the multilateral arena, both in preparation for and subsequent to the BWC Review Conferences (RevCons) held every five years. The RevCons (latest RevCon held December 1996) have the goal of developing measures to strengthen compliance with the BWC; this project supports U.S. policy makers by analyzing and prioritizing proposed confidence-building measures. RDT&E following the RevCons will be essential in continuing this process and ensuring confidence-building is balanced against the need to protect legitimate DoD/U.S. equities. The project also provides technical assessments of transparency measures that are being reviewed for inclusion in a series of planned exchange visits among the US/UK/Russia, in accordance with the 1992 Trilateral Statement; the goal is to resolve ambiguities in compliance with the BWC as well as to promote openness on legitimate military BW defense programs.

This project descriptive plan supports the JCS Joint Warfighting Capability of counterproliferation.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711BR

Project CC - Chemical/Biological Arms Control Technology (cont'd) -

FY 1999 Plans

Technical Assessments ($4.0M)

- Continue support to Interagency for BWC Ad Hoc Committee.
- Provide support to BW Trilateral Visits.
- Continue technical support to CWC Policy Interagency Working Group to establish the U.S. position on and responses to issues raised concerning verification/implementation provisions of the CWC.
- Provide technical assessment of BW protocols and DoD vulnerabilities.
- Continue validation of on-site sampling and analytical methods developed in Agency programs.
- Transition operational control of CAMIN to U.S. Army Chemical Biological Defense Command (USACBDCOM).
- Deliver CAMIN source code and documentation.
- Expand and maintain BW History and Database.

Technology Development ($6.5M)

- Evaluate emerging sampling, sample preparation, and analytical technologies as they become available.
- Complete development of technologies and equipment to fill CWC-identified on-site inspection technology gaps.
- Continue to adapt more advanced spectroscopy technologies to improve on-site sampling and analysis.
- Develop innovative sensing technologies for potential CWC verification applications.
- Support CWC inspection equipment/procedures test & evaluation.
- Complete engineering development of the hand-held chemical detector.
- Continue engineering development of the On-Site Laboratory.
- Improve chemical agent characterization and sensitivities of non-destructive evaluation technologies.
- Continue emerging technologies investigations for future treaty requirements through industry, academia and national laboratories.
- Initiate development of Implementation and Compliance Information System and analytical tools.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/Advanced Technology Development - BA3	R-1 ITEM NOMENCLATURE Verification Technology Demonstration; 0603711BR

Project CD - Nuclear Arms Control Technology - This project consists of research, development, test and evaluation (RDT&E) activities required to provide a comprehensive and integrated DoD research and development program to support preparation, implementation, compliance, and verification of the Comprehensive Test Ban Treaty (CTBT). This project is consistent with the direction given December 1995 by the Deputy Secretary of Defense (Implementation of the CTBT), May 1996 by the Under Secretary of Defense for Acquisition and Technology (Revised Arms Control Treaties and Agreements Planning Assumptions) and the August 1996 Program Decision Memorandum 1 that describes funding for CTBT safeguards support and funding required for CTBT entry-into-force.

The CTBT arms control activities are the following:

U.S. CTBT International Monitoring System (IMS) Sensors-- This program will enable the U.S. to independently monitor and detect nuclear test activities worldwide and fulfill its obligations under the CTBT. The Treaty will require the U.S. to contribute 40 stations and data exchange to the IMS . This funding supports R&D and prototyping for the four technologies required by the treaty.

CTBT International Data Center (IDC)-- The U.S. has committed to develop, prototype, and transition to the CTBT international organization an IDC that will have the capability to acquire, archive, process, and analyze data from approximately 320 IMS sensor stations positioned around the globe, and to disseminate raw data and products to all States Parties. The IDC will serve as the central data processing and distribution hub for the treaty verification regime, will be located in Vienna, Austria, at the headquarters of the CTBT organization. The IDC will be critical for supporting the U.S. objectives for CTBT implementation and compliance and global monitoring.

U.S. CTBT Interface-- The U.S. must develop, integrate, test, and evaluate an interface to the international CTBT organization to support routing of data between U.S. facilities and the IDC; to support the U.S. National Authority in the execution of Treaty related exchanges and decisions; and to function as a backup data archive and research analysis center. This funding supports initial prototyping of the National Authority interface.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711BR**

Project CD - Nuclear Arms Control Technology (cont'd) -

Seismic - Acoustic and Radionuclide Research-- The U.S. agreement to a zero-yield CTBT is contingent upon the capability to independently monitor nuclear activities worldwide. Understanding, processing, and analyzing monitoring data and providing actionable information based on these data and products will require significant basic research and exploratory development in the areas of seismic, hydroacoustic, infrasound, and radionuclide monitoring. This R&D work has no parallel in other arms control treaties. This effort requires an understanding of geophysical and physical phenomena that have not yet been studied or understood but must be developed if the treaty is to be successfully monitored. The objectives of the R&D program are to enhance monitoring capabilities to meet current CTBT standards at decreasing cost over time and to enhance monitoring capabilities to detect potential violators.

Implementation/Compliance Support-- The DoD must facilitate the transfer of technical data and information from the nuclear monitoring R&D program to the interagency and U.S. delegation for arms control impact analysis, including verification and verification technology requirements; implementation planning and oversight; treaty compliance reviews; coordination and R&D program support; education; and management information system (MIS) support for arms control-related data bases. This funding supports technical analysis, technology demonstration plans, test plans, etc. in anticipation of requirements based on the current monitoring and verification technologies needed by the CTBT Preparatory Commission or any other R&D programs related to the CTBT.

FY 1999 Plans

U.S. CTBT IMS Sensors ($5.9M)

- Implement prototype seismic stations.
- Test and evaluate infrasound sensors.
- Prototype radionuclide sensors.

CTBT IDC ($13.8M)

- Integrate proven seismic, hydroacoustic, infrasound, and radionuclide data exploitation techniques into the automated and interactive systems.
- Transition the prototype IDC systems to the international CTBT organization.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711BR**

Project CD - Nuclear Arms Control Technology (cont'd) -

Validate prototype for initial operational testing and evaluation.

Develop upgrades to increase the prototype IDC capability to support on-going R&D.

U.S. CTBT Interface ($4.7M)

Develop U.S. Data Routing protocol and interface with IDC.

Develop tools and methodologies to support National Authority.

Seismic - Acoustic Research ($8.8M)

Continue to derive new methods for enhancing detection, location, screening, and identification of seismic, oceanic, and atmospheric events.

Continue to develop computerized, rapidly executing techniques and algorithms to detect, locate, and identify seismic, acoustic and gases signals from operational sensor systems.

Continue research and development to improved understanding of source phenomenology and propagation for events near detection threshold.

Implementation/Compliance Support ($2.1M)

Conduct analyses and assessments of selected CTBT implementation and compliance issues.

Develop the types of information to be presented to policy and decision makers.

Develop cost effective techniques for arms control related databases.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Verification Technology Demonstration; 0603711BR**

B. Program Change Summary	FY1997	FY1998	FY1999
Previous President's Budget	0.0	0.0	0.0
Current President's Budget	0.0	0.0	63.1

Change Summary Explanation:

In accordance with the November 1997 Defense Reform Initiative, resources for FY 1999 and out which were previously addressed in PE 0603711H have been transferred to this PE. Increased funding beginning in FY 1999 supports the development and installation of the monitoring facilities in the U.S. required by the Comprehensive Test Ban Treaty.

C. Other Program Funding Summary.

	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02	FY 03
0603711H Verification Technology Demonstration	25.3	80.8	0.0	0.0	0.0	0.0	0.0

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/RDT&E Management Support - BA6**	R-1 ITEM NOMENCLATURE **Counterproliferation Support; 0605160BR**

COST *(In Millions)*	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete
Total 0605160BR Cost	0.0	0.0	9.9	9.7	10.3	8.5	8.7	Continuing
Project P542 CP Architecture Studies and Management Oversight	0.0	0.0	7.9	7.7	8.0	6.2	6.3	Continuing
Project P545 Nuclear Matters	0.0	0.0	2.0	2.0	2.3	2.3	2.4	Continuing

A. Mission Description and Budget Item Justification - In August 1994, DoD established the Counterproliferation Support Program specifically to address the DoD shortfalls in counterproliferation operational capabilities documented in the May 1994 Report to Congress titled *Report on Nonproliferation and Counterproliferation Activities and Programs*. Counterproliferation Support Program funds are used to leverage DoD acquisition programs to meet the counterproliferation priorities of the Commanders-in-Chief (CINCs) of the Combatant Commands and accelerate the deployment of enhanced capabilities to the field. Specifically, the goal of the Counterproliferation Support Program is to improve specific military counterproliferation capabilities by (1) building on ongoing programs in the Services, DoD agencies, Department of Energy and U.S. Intelligence; (2) focusing on the most critical counterproliferation shortfalls to address major gaps in deployed capabilities (as reflected in the CINCs' priorities and the Counterproliferation Review Committee's (CPRC) prioritized list of counterproliferation Areas for Capability Enhancements); (3) leveraging existing program funding to more rapidly field capabilities by accelerating the deliverables of DoD programs; (4) identifying and enhancing the development of high payoff technologies to accelerate capabilities to the warfighter; (5) identifying and promoting key non-materiel initiatives that complement technological advances; and (6) transitioning Counterproliferation Support Program projects to the Services as soon as practicable.

The November 1997 Defense Reform Initiative (DRI) directed the establishment of a Defense Threat Reduction and Treaty Compliance Agency effective 1 October 1998. As a result of the DRI, resources for FY 1999 and out which were previously addressed in Program Element (PE) 0605160D8Z have been transferred to this PE.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/RDT&E Management Support - BA6**	R-1 ITEM NOMENCLATURE **Counterproliferation Support; 0605160BR**

Project P542 - Counterproliferation Architecture Studies and Management/Oversight: This project provides essential technical, architectural, and integration support to the CP Support Program. The project will: (1) conduct analyses and planning activities necessary for program development, project prioritization and management oversight; (2) prepare required program deliverables such as the annual CP Report to Congress and internal DoD and interagency documents; and (3) provide technical and analytical support to the established CP review groups, including the congressionally mandated Counterproliferation Program Review Committee (CPRC). This project provides the critical manpower necessary in conducting the day-to-day operations of the CP Support Program and in providing the required OSD management oversight as described in the CP Support Program's Program Management Plan.

FY 1999 Plans

Systems Engineering and Technical Analysis ($3,360K)

- Continue CP program management, programmatic and technical planning support.
- Continue CP technical analyses support and technical program oversight support.
- Continue CP interagency program coordination and integration activities (CPRC, Nonproliferation and Arms Control Technology Working Group).
- Continue CPRC Annual Report to Congress.
- Continue support to PA&E and Joint Staff for WMD effects analyses.

CP architectural studies and assessments ($4,502K)

- Continue trade-off analyses of contributions of selected DoD acquisition efforts to DoD counterproliferation capabilities.
- Assess technology needs to enable U.S. forces to counter WMD proliferation.
- Assess hard target kill technologies including mission planning tools, battle damage assessment and intelligence preparation of the battlefield.
- Assess first responder/SOF WMD technology needs.
- Continue CP Capabilities Working Group.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-Wide/RDT&E Management Support - BA6	R-1 ITEM NOMENCLATURE Counterproliferation Support; 0605160BR

Project P545 - Nuclear Matters: Nuclear weapons receive special consideration within OSD because of the political and military importance, their destructive power and the potential consequences of an accident or an unauthorized act. Consequently, nuclear weapons issues must receive senior level attention and action/support. Complex and demanding issues exist pertaining to stockpile levels and stockpile maintenance and stewardship in collaboration with the Department of Energy, especially in view of an aging stockpile and the moratorium on underground nuclear testing. Project 545 provides support for analysis and assessments of issues associated with the reliability, safety, security, transportation, command and control, maintenance, storage and sustainability of the enduring stockpile.

FY 1999 Plans

Nuclear Matters ($2,012K)

- DoD oversight of DOE stockpile stewardship activities.
- Nuclear Weapons Council support.
- Support activities in the conduct of international fora.
- Support to DoD policy formulation on nuclear weapons safety, use control, survivability, certification, transportation and reliability.
- Analyses and support activities for senior level advisory groups.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/RDT&E Management Support - BA6**	R-1 ITEM NOMENCLATURE **Counterproliferation Support; 0605160BR**

B. Program Change Summary	FY 1997	FY 1998	FY 1999
Previous President's Budget	0.0	0.0	0.0
Current President's Budget	0.0	0.0	9.9

Change Summary Explanation:

In accordance with the November 1997 Defense Reform Initiative, resources for FY 1999 and out which were previously addressed in PE 0605160D8Z have been transferred to this PE.

C. Other Program Funding Summary	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003
0605160D8Z Counterproliferation Management Support. P542	5,485	5,500					
0603160D8Z Counterproliferation Advance Development	61,840	65,212	0	0	0	0	0
0603160BR Counterproliferation Support - AdvDev			70,611	68,110	64,180	65,004	66,280

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Joint Chiefs of Staff
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
71	0603857J	All Service Combat Identification Evaluation Team	4			13,014	U
88	0208043J	ISLAND SUN	4	1,198			U
		Demonstration and Validation		1,198		13,014	
106	0605126J	Joint Theater Air and Missile Defense Organizatio	6		14,374	17,423	U
		RDT&E Management Support			14,374	17,423	
124	0208052J	Joint Analytical Model Improvement Program	7	986	1,940	1,847	U
134	0303149J	C4I for the Warrior	7	2,502	2,506	2,819	U
143	0305188J	Joint C4ISR Battle Center (JBC)	7	2,829	2,808		U
157	0902298J	Management Headquarters (OJCS)	7	9,985	8,905	9,617	U
158	0902740J	Joint Simulation System	7	21,020	23,443	24,775	U
		Operational Systems Development		37,322	39,602	39,058	
Total		Joint Chiefs of Staff		38,520	53,976	69,495	

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Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 4	**R-1 ITEM NOMENCLATURE:** 0603857J All Service Combat Identification Evaluation Team (ASCIET)

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003		Cost to Complete	Total Cost
TOTAL PE COST	0	0	13.014	13.231	13.461	13.690	13.925		Continuing	Continuing

A. Mission Description and Budget Item Justification:

The All Service Combat Identification Evaluation Team (ASCIET) will transfer to the Joint Staff during FY 1998. ASCIET was formed from the OSD-Sponsored Joint Air Defense Operations/Joint Engagement Zone (JADO/JEZ) Joint Test and Evaluation Program conducted during FY 1990 through FY 1994. JADO/JEZ tested the ability of Service forces to execute an effective air defense network in a joint tactical environment. In December 1993, the Joint Requirements Oversight Council (JROC) directed that the JADO/JEZ Program transition to the ASCIET Program on 1 October 1994. ASCIET is an expanding effort aimed at fostering improved tactics, techniques and procedures across all combat identification (CID) mission areas. ASCIET is chartered to employ the equipment and personnel of all Services to evaluate, investigate, and assess various concepts of combat identification on the battlefield. The US Air Force is the lead service. ASCIET will also offer federally funded research and development centers (FFRDCs), service battle laboratories, and industry the opportunity to review and evaluate emerging technologies in a multi-Service environment on a not-to-interfere basis as a risk reduction and verification opportunity during ASCIET evaluations. Requirements and resources for FY97 and FY98 come from Navy PE 0604777N, Army PE 0604817A , Marine PE 0206623M, Air Force PE 0207417F.

ASCIET's efforts to evaluate, document and report on CID capability is a critical force enabler and a Department priority. Perceived inaction on ASCIET identified deficiencies in CID has forced changes in the command and control of the ASCIET organization. During FY 1998, the organization will be moved under the Joint Staff to ensure a coordinated, synergistic approach for improving warfighting capability into the 21st century. By evaluating interoperability, technology application and development, and training, the new organization will provide the means to efficiently assess ground, air and maritime force capabilities, determine future requirements, develop new systems, and program for long term procurement. (From inception through FY 1998, ASCIET has been funded annually by all four Services through a Memorandum Of Agreement.) This program is in budget activity 4 which includes efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 4	**R-1 ITEM NOMENCLATURE:** 0603857J All Service Combat Identification Evaluation Team (ASCIET)

FY 1999

7.200	Evaluation Support: Contractors for instrumentation/transport/rental equipment (track costs), Combat Unit travel, billeting, and per diem expense, augmentees for evaluation manpower support (FAA, security, weapons systems specialist), military vehicles, loading/unloading equipment, etc.
.174	ASCIET members travel
5.000	Annual Contractors: Research of emerging technologies, analysis of data from evaluation.
.040	Base Operations: facilities maintenance, utilities, postage, shipping, photolab, cleaning, etc.
.300	ASCIET operations: supplies, computer/upgrades, copiers, faxes, phone, etc.
.300	Conferences to Plan Evaluation: Initial Planning, Air Space, Opposing Force, Site visit to Evaluation Location, Concept of Operations, Final Planning
$13.014	Total

B. Program Change Summary:

	FY1997	FY1998	FY1999	Total Cost
FY1998 President's Budget	9.935*/**	8.000*/**	0	Continuing
FY1998 Appropriated Value	0	0	0	0
Adjustments to Appropriated Value	0	0	13.014	0
FY1999 President's Budget	0	0	13.014	Continuing

Change Summary Explanation:
Funding:
*FY97 and FY98 funding is provided as information only (non-add) as it is provided by all four services by Memorandum of Agreement: Navy PE 0604777N, Army PE 0604817A , Marine PE 0206623M, and Air Force PE 0207417F. FY99 begins ASCIET funding in the Joint Staff.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 4	**R-1 ITEM NOMENCLATURE:** 0603857J All Service Combat Identification Evaluation Team (ASCIET)

** FY99 budget of $13 million is the normal funding historically provided to ASCIET. In FY97 due to insufficient ground maneuver area, the surface-to-surface mission area was not evaluated, therefore the services withheld $2.7 million in funding. FY98 Budget reduced due to change in venue resulting in no Evaluation in FY98.

C. Other Program Funding Summary: N/A

D. Schedule Profile: Not applicable. ASCIET conducts an annual combat ID evaluation, employing assets from all four armed services, to evaluate the results when representative forces use fielded systems in a realistic environment. Three major planning conferences involving service participants as well as mini-evaluations, demonstrations, and rehearsals are used as a prelude to the live evaluation to reduce technical risk, develop procedures and architectures, and refine operational plans.

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Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 6	**R-1 ITEM NOMENCLATURE:** 0605126J Joint Theater Air and Missile Defense Organization (JTAMDO)

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003		Cost to Complete	Total Cost
TOTAL PE COST	0	14.374	17.423	17.357	17.002	17.334	17.672		Continuing	Continuing

A. Mission Description and Budget Item Justification:

JTAMDO is the single organization within DoD chartered to plan, coordinate, and oversee joint integrated theater air and missile defense (TAMD) requirements, joint operational concepts, and operational architectures. JTAMDO is also responsible for proposing and evaluating concepts, architectures, capabilities and technologies. Evaluations are to determine deficiencies in DoD's air and missile defense capabilities and their impact on warfighting CINCs in order to define requirements, architectures and weapon system performance. The JTAMDO functions include: lead development of joint concepts, architectures and requirements; serve as the operational community's proponent for requirements in theater air and missile defense; serve as the joint theater air and missile defense resource proponent within the resource allocation structures of the Services, BMDO, and DARPA; lead TAMD mission area analysis; conduct evaluations and demonstrations of joint air defense architectures and concepts; monitor the research, development, acquisition, and demonstration activity associated with the Service's TAMD programs; recommend to the JROC those RD&A efforts which should be designated as TAMD programs; recommend to the JROC and USD A&T requirements, technologies, architectures and concepts which should be evaluated, developed and fielded; develop and maintain the TAMD Master Plan which will contain requirements, assessments of current and future capabilities and an acquisition roadmap for development and fielding of required capabilities. This program is in budget activity 6 - as it performs management support of RDT&E Activities.

FY1998

$7.620 Conduct modeling and simulation activities to: provide an analytical basis for requirements; develop and evaluate new battle management concepts and employment concepts; examine the impact and application of advanced technology concepts. Planned activities include: integration of AWACs and Patriot with the Navy's Cooperative Engagement Capability (CEC) system; examination of basic employment concepts for Joint Engagement Zone operations; and examination of cruise missile defense systems and architectures to determine current and future DoD capabilities.

$3.673 Leverage All Service Combat Identification Evaluation Team (ASCIET), Joint Warfighter Interoperability Demonstration (JWID), Joint Task Force Exercise (JTFEX), Roving Sands and others to: evaluate new battle management concepts; develop new Joint TTPs for TAMD; examine advanced technology concepts; validate TAMD employment laydowns.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 6	**R-1 ITEM NOMENCLATURE:** 0605126J Joint Theater Air and Missile Defense Organization (JTAMDO)

$.895	Provide direct support to CINCs to evaluate and explore unique CINC problem areas in TAMD by facilitating and funding the participation of agencies, C2 platforms, and test support equipment and personnel in exercises such as Ulchi Focus Lens (PACOM) and Optic Windmill (EUCOM).
$.100	Develop threat scenarios to support analysis efforts. Conduct initial planning and development for a FY02 TAMD demonstration. Specific activities include: development of detailed threat laydown and enemy employment scheme suitable for use in detailed engineering analysis and modeling; and develop an integrated schedule for Service weapon system tests and evaluations.
$2.086	Fund JTAMDO operations, including civilian pay, office lease, office equipment, training, administrative support and travel.
$14.374	Total
FY1999	
$8.575	Conduct modeling and simulation activities to develop and evaluate new battle management concepts, employment concepts and application of advanced technology concepts. Specific activities include: studies and simulations of JTIDS and CEC capabilities to produce a Single Integrated Air Picture (SIAP); examination of combat ID (CID) needs and deficiencies for cruise missiles; examination of long range, wide area CID to support defense in depth against weapons of mass destruction; modeling evaluation of sensor (AWACS, AEGIS, E-2, CRC, UAV) laydown options to optimize SIAP coverage and threat detection and engagement; modeling of fighter and SAM joint engagement zones to provide kill performance data, information exchange requirements, and define TTPs.
$4.230	Validate TAMD force employment laydowns. Planned activities include: development and use of a joint defensive planner (Roving Sands); development of requirements for hardware/personnel to support a Joint Interface Control Officer (JICO) to support data link employment (ASCIET and Roving Sands); and joint engagement zone CONOPS development and refinement.
$2.216	Provide direct support to CINCs to evaluate and explore unique CINC problem areas in TAMD by facilitating and funding the participation of agencies, C2 platforms, and test support equipment and personnel in exercises such as Ulchi Focus Lens (PACOM) and Optic Windmill (EUCOM).
$.731	Demonstration activities. Fund additional analysis at planned Service tests and technology demonstration (USAF and USMC) to focus on joint concepts in order to define joint requirements and refine employment concepts.
$1.671	Fund JTAMDO operations, including civilian pay, office lease, office equipment, training, administrative support and travel.
$17.423	Total

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 6	**R-1 ITEM NOMENCLATURE:** 0605126J Joint Theater Air and Missile Defense Organization (JTAMDO)

B. Program Change Summary:

	FY1997	FY1998	FY1999	Total Cost
FY1998 President's Budget	0	23.100	17.850	Continuing
FY1998 Appropriated Value		16.100		
Adjustments	0	-1.726	-0.427	
FY1999 President's Budget	0	14.374	17.423	Continuing

Change Summary Explanation: The adjustments for FY 1998 and FY 1999 are due to Congressional non-programmatic and inflation reductions.

IMPACTS: Budget reductions have resulted in JTAMDO severely reducing its analysis activities, participation in exercises and demonstrations, and its CINC support activities. This will significantly delay development of requirements and subsequently the prioritization and fielding of critical cruise missile, ballistic missile and aircraft defenses. Examples of specific activities JTAMDO has been unable to execute due to funding cuts are: Activities at the Navy's Applied Physics Lab to determine optimization of sensor laydowns for cruise missile detection and engagement delayed until 1999; examination of Link 16 data loading increases as a result of the SIAP delayed until 1999; evaluation of the methodology and benefit of standardizing data protocol for TAMD weapon and C2 systems canceled; activities at the Army's Air Defense Artillery School to evaluate alternative laydown options for Army surface to air defenses to optimize cruise missile defense delayed until at least 1999; joint engagement zone connectivity requirements definition at the Navy's California research facility canceled; examination of the impact of the Navy's cooperative engagement (CEC) data on Link 16 and its benefit to joint employment delayed until at least 1999; examination and data collection on ballistic missile defense C2 connectivity in PACOM in Ulchi Focus Lens canceled; and demonstration and examination of joint defensive planning tools in JTFX Spring 98 canceled. We will achieve these in the outyears with additional funding but this progressively delays our ability to develop and validate viable TAMD requirements and architectures.

C. Other Program Funding Summary: N/A

D. Schedule Profile: N/A

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Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0208052J Joint Analytical Model Improvement Program (JAMIP)

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003		Cost to Complete	Total Cost
TOTAL PE COST	.986	1.940	1.847	1.041	0.364	0.200	0		TBD	TBD

A. Mission Description and Budget Item Justification:

In May 1995, DepSecDef approved JAMIP to improve analytic support to senior DOD officials. The Joint Staff/J8 shares the lead with OSD/PA&E. The centerpiece of JAMIP is the development of the Joint Warfare System (JWARS), which will be a state-of-the-art, closed-form, constructive simulation of multi-sided, joint warfare for analysis. The Joint Staff and the Services have agreed upon JWARS as the common model to be used throughout the DOD analytic modeling community. JWARS is an advanced theater-level campaign analysis tool that will provide improved Command, Control, Communications, Computers Intelligence, Surveillance and Reconnaissance (C4ISR) and balanced joint warfare representations, and will be used for planning and execution, force assessment, system effectiveness and trade off analysis, and concept and doctrine development and assessment. Users of JWARS will include the Joint Staff, Services, CINCs, OSD, Joint Task Force Commanders/Staffs, selected other DOD organizations, and industry. R&D funds are used for research and design on challenging representation problems and independent testing, and are needed to continue development of the top priority joint warfare model as directed by DepSecDef and endorsed by VCJCS. This program is in Budget Activity 7 - Operational Systems Development because it supports currently employed systems and training activities.

B. Program Change Summary:

	FY1997	FY1998	FY1999	Total Cost
FY1998 President's Budget	1.000	2.186	1.883	Continuing
FY1998 Appropriated Value		2.186		
Adjustments	-.014	-0.246	-.036	
FY1999 President's Budget	0.986	1.940	1.847	Continuing

Reductions reflect program's share of Congressional undistributed reductions, inflation adjustments and internal realignments.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0208052J Joint Analytical Model Improvement Program (JAMIP)

C. Other Program Funding Summary:

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete	Total Cost
O&M	9.341	11.531	8.422	11.296	11.577	11.578	7.850	NA	NA
Procurement	0.000	.533	.832	.715	.634	.414	.422	NA	NA

D. Schedule Profile: The RDT&E will be spent during various quarters of each FY.

Exhibit R-2, RDT&E Budget Item Justification									Date: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7			R-1 ITEM NOMENCLATURE: 0303149J C4I for the Warrior							
Cost ($ in Millions)	**FY1997**	**FY1998**	**FY1999**	**FY2000**	**FY2001**	**FY2002**	**FY2003**		**Cost to Complete**	**Total Cost**
Prog: STEP/JWID/Advanced Concepts										
TOTAL PE COST	2.502	2.506	2.819	3.016	2.910	2.974	2.922		Continuing	Continuing

A. Mission Description and Budget Item Justification:

C4I for the Warrior is the linchpin for promoting immediate joint coalition C4I interoperability worldwide. This program provides focus and visibility into resolving C4I interoperability issues and provides organizing principles, policy and doctrine for information superiority as directed by JV2010. C4IFTW stresses interoperability and leverages the rapid pace of C4I technology advancements. This program is based on three subprograms: 1) Advanced Concepts, 2) Joint Warrior Interoperability Demonstrations (JWID), and 3) Standard Tactical Entry Point (STEP.) As the C4IFTW concepts evolve and mature, they will spawn new approaches to providing the joint warfighter with a fused real time, true representation of the battlespace. It is a unifying concept that brings the warrior an accurate and complete picture of the battlespace, timely and detailed mission objectives, and the clearest view of the targets. The Advanced Concepts initiative is intended to leverage commercial technologies and government-funded developments to provide high priority technologies to the warfighter in the shortest period of time. The current focus of Advanced Concepts, the Network Warfare Simulation (NETWARS) model, addresses communications burden issues. The NETWARS model will: assess the effects of full operational combat traffic loading on current and future tactical communications; conduct quick-turn communications planning for small regional conflicts or peacekeeping scenarios; and evaluate new communication systems and technologies. JWIDs are Joint Staff-sponsored C4I demonstrations of existing, off-the-shelf, new and evolving C4I technologies. The demonstrations, which are jointly screened to determine ability to satisfy warfighting requirements, enable warfighters to operate these capabilities and assess their ability to enhance their operational missions. The STEP program will establish a standard set of C4I services at selected Defense Satellite Communications Systems (DSCS) gateways and STEP sites to support a Commander Joint Task Force (CJTF) and its component forces worldwide. STEP essentially extends the Defense Information System Network (DISN) to the tactical forces specifically, services from the Defense Switched Network (DSN), Defense Red Switch Network (DRSN), Unclassified, but sensitive, and SECRET Internet Protocol Router Networks (NIPRNET/SIPRNET) video teleconference (VTC), and the Joint Worldwide Intelligence Communications System (JWICS). (STEP has no RDT&E funds - it uses O&M and procurement funds only.)

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0303149J C4I for the Warrior

FY97	FY98	FY99	Description
0.194	0.193	0.135	Joint Warrior Interoperability Demonstrations (JWID)
2.308	2.313	2.684	Advanced Concepts - NETWARS
2.502	2.506	2.819	Total

B. Program Change Summary:

	FY1997	FY1998	FY1999	Total Cost
FY1998 President's Budget	2.554	5.554	3.215	Continuing
FY1998 Appropriated Value		5.554		
Adjustments to Appropriated Value				
a. Transfer JBC to new PE	0	-2.964	-3.025	
b. Reallocation of non-programmatic adjustments	-0.052	0	0	
c. Advance Concepts Funding	0	0	2.684	
d. Congressional Reductions/Inflation		-.084	-.055	
FY1999 President's Budget	2.502	2.506	2.819	Continuing

Change Summary Explanation:
Funding:

a. This PE no longer contains the Joint C4ISR Battle Center (JBC). JBC funding was moved to its own newly established PE 0305188J.
b. Reductions in FY97 are due to non-programmatic adjustments.
c. The change in funding in FY99 reflects the development of the continued funding of the overall C4IFTW account. Advance Concepts' current focus is to develop a joint C4 assessment model, the Network Warfare Simulation (NETWARS) model, to evaluate such advanced concepts as: evaluating emerging technologies; performing communications burden assessment; and doing contingency planning. It will integrate the various Services communications devices and systems, in a timely fashion, into a common and realistic COTS (commercial

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	R-1 ITEM NOMENCLATURE: 0303149J C4I for the Warrior

off-the-shelf) based simulation framework for detailed assessments of joint C4 connectivity and capabilities. NETWARS leverages commercial technologies and government funded developments and provides high priority technologies to the warfighter. No single model or environment exists that supports: a robust simulation of Joint Task Force tactical communications; joint tactical network traffic analysis; joint tactical communications contingency planning; and evaluation of emerging technologies. There is no current means to bring together the disparate Service specific communications modules into a single simulation. NETWARS is the first communications model to integrate the capability to assess networks across the spectrum of joint missions within a common framework.

d. FY98 reductions reflect program's share of Congressional/OSD reductions. FY99 reductions reflect inflation.

C. Other Program Funding Summary:

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete	Total Cost
O&M	.763	3.666	1.287	1.264	1.268	1.190	1.200	TBD	TBD
Procurement	10.561	8.992	.790	.719	.686	.811	.823	TBD	TBD

Change between FY98 & FY99:
STEP will transfer from the Joint Staff to DISA beginning FY99. The Joint Staff has exercised both oversight and acquisition responsibilities for STEP program since the program was approved by the MCEB and JROC in 1994 due to its enormous importance to the warfighting CINCs. The STEP Design Plan was approved on 7 October 1994. Since then, the program has matured to the point that it no longer requires direct Joint Staff program management and, in fact, the Defense Information Systems Agency (DISA) already has an office assigned which has been fulfilling program acquisition functions. DISA is better suited for program management functions and this transfer of responsibility is consistent with its role in other Military Satellite Communication System terminal and baseband equipment upgrade programs. The Joint Staff (J6) will retain its role as the program oversight authority to ensure that the program remains a viable asset to the warfighter.

D. Schedule Profile:
The RDT&E will be spent during various quarters of each FY.

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Exhibit R-2, RDT&E Budget Item Justification									Date: February 1998	
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7			R-1 ITEM NOMENCLATURE: 0305188J Joint C4ISR Battle Center (JBC)							
Cost ($ in Millions)	**FY1997**	**FY1998**	**FY1999**	**FY2000**	**FY2001**	**FY2002**	**FY2003**		**Cost to Complete**	**Total Cost**
TOTAL PE COST	2.829	2.808	0	0	0	0	0		Continuing	Continuing

A. Mission Description and Budget Item Justification:

The Joint Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Battle Center (JBC) is the Chairman, Joint Chiefs of Staff (CJCS) facility for warfighter exploration and assessment of C4ISR capabilities. The Center provides the combatant commands, at the Joint Task Force (JTF) level, with a joint assessment and experimental environment for the warfighter and technologist in support of Joint Vision 2010 (JV2010). It serves as the technical analysis and assessment agency for the Joint Requirement Operating Council (JROC) in determining C4ISR system "value-added" PRIOR to introduction to the CINCs and in advance of system fielding in operational environments. The intent is for the JBC to be a forcing function for joint synchronization and a means to foster rapid, near-term insertion of C4ISR technology. The mission of the JBC is to provide rapid assessment of required C4ISR interoperability and warfighter utility, join emerging C4ISR technology with new operational doctrine, and result in fielding C4ISR capabilities that meet the joint warfighter's needs. Initial attention is focused on developing the experimentation and assessment methodology for implementing JV 2010. This program element is under Budget Activity 07 because it supports operational systems development.

B. Program Change Summary:

	FY1997	FY1998	FY1999	Total Cost
FY1998 President's Budget	0	0	0	Continuing
FY1998 Appropriated Value				
Adjustments to Appropriated Value				
a. Funds transfer from DISA	2.829	0	0	
b. Funds transfer from PE 0303149J C4IFTW	0	2.964	3.025	
c. Fund reallocation from Procurement	0	0	2.327	
d. Congressional/OSD Reductions		-.156		
e. Program Transfer			-5.352	
FY1999 President's Budget	2.829	2.808	0	Continuing

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0305188J Joint C4ISR Battle Center (JBC)

Change Summary Explanation:
Funding:

a. JBC resources transferred from DISA to TJS in April 1997. FY 97 resources were not reflected in the FY 1998 President's Budget (FY97 obligations were split between DISA and the Joint Staff).
b. Funds were moved from PE 0303149J – C4I For the Warrior to the newly established PE 0305188 – Joint C4ISR Battle Center .
c. In addition, resources have been reallocated between Procurement and RDT&E based on JBC mission to assess, evaluate, and validate C4ISR systems in advance of service procurement/fielding.
d. FY98 reductions reflect program's share of Congressional undistributed/OSD reductions.
e. FY99 reductions reflect decisions made in the Defense Reform Initiative (DRI) to transfer the JBC to US Atlantic command (USACOM).

C. Other Program Funding Summary:

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete	Total Cost
O&M	3.884	10.845	0	0	0	0	0	TBD	TBD
Procurement	1.192	2.834	0	0	0	0	0	TBD	TBD

D. Schedule Profile:

	FY1997				FY1998				FY1999			
(Fiscal Qtr)	1	2	3	4	1	2	3	4	1	2	3	4
Host JWID				X				X				X
Federated Battle Lab Initial Operational Capability			X									
ATM Assessment Report								X				
ATM Operational Demo											X	
Link 16 Assessment Plans							X					
Link 16 Assessment Report								X				
Link 16 Operational Demo										X		

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0902298J Management Headquarters (Joint Warfighting Capabilities Assessment)

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003		Cost to Complete	Total Cost
TOTAL PE COST	9.985	8.905	9.617	9.686	9.619	9.577	9.553		TBD	TBD

A. Mission Description and Budget Item Justification:

Joint Warfighting Capabilities Assessment (JWCA) are studies conducted in: Strike; Land and Littoral Warfare; Strategic Mobility and Sustainability; Sea, Air and Space Support; Deterrence/Counter Proliferation; Regional Engagement/PRESENCE; Command and Control (C2); Information Warfare; Intelligence, Surveillance and Reconnaissance; Joint Readiness (Personnel); Joint Readiness (Forces); and Joint Readiness (Exercise/Training). Each JWCA is sponsored by a Joint Staff Directorate and is conducted by teams of warfighting and functional area experts from the unified commands, Services, Office of the Secretary of Defense, Federally Funded Research and Development Centers, and others as necessary. Assessments examine key relationships between warfighting capabilities and interactions and identify opportunities for improving warfighting effectiveness. JWCA processes assist the Joint Requirements Oversight Council (JROC) in providing recommendations to the chairman of the Joint Chiefs of Staff to support statutory responsibilities to provide military advice to the SECDEF on the military requirements priorities. This program is in Budget Activity 7 - Operational Systems Development because it supports currently employed systems and training activities.

B. Program Change Summary:

	FY1997	FY1998	FY1999	Total Cost
FY1998 President's Budget	10.012	10.035	9.806	Continuing
FY1998 Appropriated Value		10.035		
Adjustments	-0.027	-1.130	-0.189	
FY1999 President's Budget	9.985	8.905	9.617	Continuing

Reductions reflect program's share of Congressional undistributed reductions and inflation adjustments.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0902298J Management Headquarters (Joint Warfighting Capabilities Assessment)

C. Other Program Funding Summary:

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete	Total Cost
O&M	2.973	2.977	2.936	3.000	3.000	3.000	3.000	N/A	N/A

D. Schedule Profile: N/A

The RDT&E will be spent during various quarters of each FY.

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0902740J Joint Simulation System (JSIMS)

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003		Cost to Complete	Total Cost
TOTAL PE COST	21.020	23.443	24.775	18.722	16.606	16.863	17.159		Continuing	Continuing

A. Mission Description and Budget Item Justification:

JSIMS is at the leading edge of the Goldwaters-Nichols Act as the vehicle to institute interoperability and Joint Training, and eliminate Service stovepipe training. JSIMS is a single, seamlessly integrated, simulation environment designed to train Commanders in Chief (CINCs) and Services to meet the Chairman's Joint Training System requirements. It includes a core infrastructure and mission space objects, both maintained in a common repository. The objects can be composed to create a simulation capability to support Joint or Service training, rehearsal, or education objectives. JSIMS is a core of common and joint representations and services, a runtime hardware and software infrastructure, interfaces, and representations of Air/Space, Land, and Maritime Warfare functionality. JSIMS includes a strategy for cooperative development that is based on the use of Executive Agents (i.e., Army, Navy, Air Force, etc.) to provide authoritative domain-specific representations. This synopsis also summarizes the JSIMS development acquisition strategy which was originally outlined in the formal JSIMS Systems Acquisition Master Plan (SAMP) dated 27 November 1996. This program is in Budget Activity 7 - Operational Systems Development, because it supports currently employed systems and training activities. The FY98 funding obligation strategy is planned to obligate approximately 50% of the funding within the first quarter of the fiscal year and the balance within the subsequent second and third quarters due to the majority of the JSIMS funding being planned for the Integration and Development contract.

FY 1997:

$ .748 Purchase of minor equipment, supplies, and support associated with operations and staff within the JSIMS Joint Program Office (JPO). Initial costs associated with establishing and initial staffing of the JSIMS JPO.

$19.021 Supported the initial award of the integration and development contract for JSIMS, and support contracts associated with requirements and sequencing determination, and all aspects of technical support relating to domain engineering, Joint Conceptual Model of the Mission Space, architecture and integration, and development of a family of plans within the JSIMS JPO.

$ .649 Supported civilian personnel within the JSIMS JPO in areas of compensation and benefits relating to salaries.

$ .602 Supported costs within the JPO for all types of briefing, formal reviews, software program requirements, and small purchase transactions.

$21.020 Total

Exhibit R-2, RDT&E Budget Item Justification		Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	R-1 ITEM NOMENCLATURE: 0902740J Joint Simulation System (JSIMS)	

FY 1998:

$ .325 Purchase of minor equipment and hardware for use in the JSIMS JPO and test bed area; lease of office space from GSA for JSIMS staff who are not located within Government provided facilities.

$21.946 Supports major integration and development contract to support the first build cycle (Build 0) of JSIMS software which focuses on key components of Core Infrastructure and JSIMS Modeling and Simulation Resource Repository (JMSRR). Provides the first instance of integrating Development Agent mission space objects at a rudimentary level. Commence the second build cycle of software development (Build 1) which will mature the Core Infrastructure, complete the JMSRR, and begin development of the mission space objects.

$ .901 Supports civilian personnel within the JSIMS JPO in areas of compensation and benefits relating to salaries.

$ .271 Supports other areas of development of JSIMS in the areas of preparation for Milestone Reviews, internal oversight reviews, and baselining specification of program requirements across the Enterprise domain of Service Development Agents.

$23.443 Total

FY1999:

$ .343 Purchase of minor equipment and hardware for continuation of work within the test bed; lease of office space from GSA for JSIMS staff who are not located within Government provided facilities.

$23.116 Supports major integration and development contract to conclude the second build cycle and commence the third build cycle (Build 2). Conclude Build 2 and release (during last quarter) the JSIMS Version 1.0 software for operational testing; also funds some miscellaneous minor support contracts.

$ 1.030 Supports civilian personnel within the JSIMS JPO in areas of compensation and benefits relating to salaries.

$ .286 Miscellaneous costs within the JPO associated with preparation of program reviews, day-to-day JPO operations, services, maintenance, support, and purchases made through small purchase procurement actions.

$24.775 Total

Exhibit R-2, RDT&E Budget Item Justification	Date: February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense Wide, Joint Staff/BA 7	**R-1 ITEM NOMENCLATURE:** 0902740J Joint Simulation System (JSIMS)

B. Program Change Summary:

	FY1997	FY1998	FY1999	Total
FY1998 President's Budget	21.054	24.321	25.179	Continuing
FY1998 Appropriated Value	0	24.321	0	
Adjustments	-.034	-.878	-.404	
FY1999 President's Budget	21.020	23.443	24.775	Continuing

Change Summary Explanation:
Reductions reflect program's share of Congressional/OSD reductions.

C. Other Program Funding Summary: N/A

D. Schedule Profile:

	FY1997				FY1998				FY1999				FY2000			
(Fiscal Qtr)	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Award	X															
Build 0 Development Readiness Milestone					X											
Build 0 Integration Readiness Milestone						X										
Build 1 Development Readiness Milestone							X									
Build 1 Integration Readiness Milestone									X							
Build 2 Development Readiness Milestone									X							
Build 2 Integration Readiness Milestone										X						
JSIMS Operational Demonstration											X					
JSIMS Initial Fielding													X			

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U.S. SPECIAL OPERATIONS COMMAND

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Special Operations Command
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
161	1160279BB	Small Business Innovative Research/Small Bus Tech	7	3,017	3,147		U
162	1160401BB	Special Operations Technology Development	7	5,743	3,917	4,026	U
163	1160402BB	Special Operations Advanced Technology Developmen	7	7,536	8,140	8,020	U
164	1160404BB	Special Operations Tactical Systems Development	7	92,153	99,654	106,238	U
165	1160405BB	Special Operations Intelligence Systems	7	2,092	10,305	1,805	U
166	1160407BB	SOF Medical Technology Development	7	1,789	1,883	2,015	U
167	1160408BB	SOF Operational Enhancements	7	29,301	25,840	33,799	U
		Operational Systems Development		141,631	152,886	155,903	
Total		Special Operations Command		141,631	152,886	155,903	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)					DATE FEBRUARY 1998				
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160279BB Small Business Innovative Research								
COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
PE 1160279BB (Small Business Innovative Research)	3.017	3.147						Cont.	Cont.
S050, Small Business Innovative Research	3.017	3.147						Cont.	Cont.

A. Mission Description and Budget Item Justification

The Small Business Innovative Research (SBIR) project is a highly competitive three phase award system which provides qualified small business concerns with the opportunity to propose high quality innovative ideas that meet specific research and development needs of USSOCOM. SBIR is a result of the Small Business Development Act of 1992. It was enacted by Congress in Public Law 97-219, reenacted by Public Law 99-443, and reauthorized by the SBIR Program Reauthorization Act of 1992. Starting in FY 1994, the SBIR program was refocused toward dual use and defense reinvestment efforts. Phase I projects evaluate the scientific technical merit and feasibility of an idea. Awards are up to $100,000 with a maximum six month period of performance. Phase II projects expand the results of, and further pursue, the developments of Phase I. Awards are up to $750,000 with a maximum two year period of performance. Phase III is for commercialization of the results of Phase II and requires the use of private or non-SBIR federal funding. DoD publishes government agency proposal projects twice per year for a consolidated DoD Request for Proposal. USSOCOM then awards its proposed SBIR projects.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160401BB Special Operations Technology Development

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
PE 1160401BB (Special Operations Technology Development)	5.743	3.917	4.026	5.197	5.264	4.398	5.027	Cont.	Cont.
S100, Special Operations Technology Development	5.743	3.917	4.026	5.197	5.264	4.398	5.027	Cont.	Cont.

A. Mission Description and Budget Item Justification

This Program Element and its project provides studies and laboratory prototypes for USSOCOM to link non-system basic research and exploratory development to Special Operations Forces (SOF) specific technology demonstrations. The project supports SOF, psychological and civil affairs forces involvement in foreign internal defense and worldwide operations. It also supports special operations forces conduct of special reconnaissance and direct action operations in low, mid, and high intensity conflict. A major objective of the SOF technology base program is to provide a balanced effort of studies and technology base funding across the exploratory research and advanced development categories in order to exploit technological developments of other organizations through aggressive resource leveraging. This resource leveraging (applying small incremental amounts of USSOCOM funding on top of significantly larger research investments by other DoD, government, and commercial organizations) will allow USCINCSOC to influence the direction of technology development or the schedule against which it is being pursued.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S100, Special Operations Technology Development	5.743	3.917	4.026	5.197	5.264	4.398	5.027	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project conducts studies and develops laboratory prototypes for applied research and advanced technology development, as well as a means for leveraging other organizations' technology projects that may not otherwise be affordable within MFP-11. Applying small incremental amounts of investments to DoD, other government agencies, and commercial organizations allows United States Commander-in-Chief Special Operations Command to influence the direction of technology development or the schedule against which it is being pursued and to acquire emerging technology for Special Operations Forces (SOF). This program provides an investment strategy for USSOCOM to link non-systems technology opportunities to USSOCOM deficiencies, capability objectives, technology development objectives and mission area analyses. Sub-projects include:

- Active Noise Cancellation. Reduce acoustic signature of SOF propeller craft.
- Audio Deception Emitter. Brassboard audio emitter to mimic low frequency audio emissions.
- Color Night Vision Fusion. Develop broad spectrum sensors and the fusion of these sensors while incorporating SOF size, weight, and human factors requirements.
- Enhanced Thermal Protection. Diver thermal protection for combat swimmers during underwater operations in cold water.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

- Head-Mounted Thermal Vision. Lightweight, low-volume, low-power thermal viewer providing a passive night/obscured vision capability using an uncooled infrared focal plane array. This project leverages other government efforts.

- Maximum Efficiency Language Training. Joint project with Army Research Institute and Defense Advanced Research Projects Agency to demonstrate an advanced computer based virtual reality interactive language tutor.

FY 1997 ACCOMPLISHMENTS:

- (1.431) SOF Command, Control, Communications, Computer, and Intelligence (C4I) Technologies. Began phase II development of Head-Mounted Thermal Vision. Developed technology for a SOF Color Night Vision Fusion device. (1QTR97-4QTR97)

- (0.376) SOF Mobility Technologies. Began development of an Active Noise Cancellation system to reduce onboard noise levels on SOF propeller aircraft. (3QTR97)

- (0.756) SOF Sustainment Technologies. Completed development and evaluation of the Maximum Efficiency Language Training prototype. Completed development and evaluation of the Audio Deception Emitter. Began development of an Enhanced Thermal Protection System to maintain performance of SOF combat swimmers during underwater operations in cold water. Began development of a waterproof tactical display system to provide navigation cues to SOF boat drivers. (1QTR97-2QTR97)

- (0.461) Continued to demonstrate technologies to remotely detect, characterize, and type classify mines, obstacles, and barriers found in littoral warfare region. (3QTR97)

- (0.576) Concept Exploration Studies. Conducted studies to analyze the optimum technology concept for an integrated sensor navigation system in support of the Naval Special Warfare Mine Countermeasures Program. Completed gas turbine engine alternatives and vehicle-mounted, crew-served weapon studies. (3QTR97-4QTR97)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

- (1.910) Joint Ranger Anti-Armor Anti-Personnel Weapons System (JRAAWS). The Bofors 84-mm M3 Carl Gustof ammunition is being adopted for use by the Naval Special Warfare Command (NAVSPECWARCOM). The ammunition is being tested to ensure insensitive munitions requirements are satisfied to allow use by NAVSPECWARCOM operators and storage/transport aboard Navy ships and submarines. Acquired test ammunition and conducted qualification testing against joint service safety and performance requirements. (2QTR97-4QTR97)

- (0.130) Technology Development Exploitation. Began a study to analyze the potential of emerging robotics technology on SOF operations. (4QTR97)

- (0.103) Classified Project. Reported under separate cover. (3QTR97)

FY 1998 PLAN:

- (1.416) SOF C4I Technologies. Complete phase II demonstration and begin evaluation of Head-Mounted Thermal Vision. Continue development of SOF Color Night Vision Fusion device. Exploit technology efforts that provide improvements in low probability of intercept/detection, and transmission rates of SOF communication and intelligence systems. (1QTR98-2QTR98)

- (0.445) SOF Mobility Technologies. Complete development and begin evaluation of the Active Noise Cancellation concept. (1QTR98)

- (0.900) SOF Sustainment Technologies. Complete development and evaluation of Enhanced Thermal Protection and waterproof tactical display efforts. Exploit technology efforts to provide enhanced performance, situational awareness, and protection of SOF personnel. (1QTR98-2QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

- (0.254) Concept Exploration Studies. Conduct a study to determine the optimum technology concept for a sympathetic detonator. Explore/validate concepts to reduce MFP-11 operations and maintenance costs through innovative technology solutions. (3QTR98)

- (0.200) Technology Development Exploitation. Exploit emerging technologies to meet critical SOF capability objectives. Needs in these areas will be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR98)

- (0.702) Classified project. Reported under separate cover. (1QTR98-2QTR98)

FY 1999 PLAN:

- (0.746) SOF C4I Technologies. Complete evaluation of Head-Mounted Thermal Vision. Complete development and begin evaluation of SOF Color Night Vision Fusion device. Continue development low probability of intercept/detection imagery forwarding to completion and evaluation. Exploit emerging C4I technologies to provide improvements in weight/volume reduction, support, power consumption/management, and enhanced antennas. Exploit technology efforts to demonstrate a capability for SOF to detect surveillance threats. (1QTR99-2QTR99)

- (0.425) SOF Mobility Technologies. Complete evaluation of the Active Noise Cancellation effort. Exploit technology to improve performance, lower the probability of detection, or improve the support of SOF mobility platforms. (1QTR99-2QTR99)

- (0.225) SOF Weapons Technologies. Exploit technology to provide SOF with stand-off capabilities for targeting, tracking and locating personnel and equipment. (3QTR99)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

- (0.268) SOF Sustainment Technologies. Continue development of FY98 new sub-projects to completion and evaluation. Exploit technology to provide improvements in weight/volume reduction and increased power capabilities for the individual SOF operator. Exploit micro-robotics technologies to enhance the individual SOF operator's mission capabilities. (1QTR99-2QTR99)

- (0.100) Concept Exploration Studies. Explore/validate concepts for projects being continued or initiated in support of the USSOCOM technology development objectives. (2QTR99)

- (0.100) Technology Development Exploitation. Exploit emerging technologies to meet critical SOF capability objectives. Needs in these areas will be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. (3QTR99)

- (2.162) Classified Project. Reported under separate cover. (1QT99-2QTR99)

ACQUISITION STRATEGY: NA

B. Program Change Summary	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	5.865	4.161	4.247	Cont.
Appropriated Value	6.083	4.161		
Adjustments to Appropriated Value / President's Budget	(0.340)	(0.244)	(0.221)	
Current Budget Submit	5.743	3.917	4.026	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160401BB Special Operations Technology Development / Project S100

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for the Small Business Innovative Research program and implementation of Congressional Defense reductions. FY 1998 decrease is for Congressional inflation adjustments supplemental bills. FY 1999 decrease is for Congressional inflation adjustments and program restructure to support higher command priorities.

Schedule: None.

Technical: None.

C. Other Program Funding Summary NA.

D. Schedule Profile NA.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Developmat / Project S200

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S200, Special Operations Special Technology	7.536	8.140	8.020	8.122	8.271	8.460	9.173	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project conducts rapid prototyping and advanced technology demonstrations (ATDs). It provides a means for demonstrating and evaluating emerging/advanced technologies in as realistic an operational environment as possible by SOF users. Evaluation results are included in a transition package which assists in the initiation of or insertion into an acquisition program. The project also addresses projects that are a result of unique joint, special mission, or area-specific needs for which a few-of-a-kind prototypes must be developed on a rapid response basis, or are of sufficient time sensitivity to accelerate the prototyping effort of a normal acquisition program in any phase. Sub-projects include:

- Advanced Sensors. ATD to provide SOF with an integrated hand-held, multi-sensor reconnaissance capability to observe, locate, and report on targets.
- Advanced Sniper Weapon Fire Control. Full wind vector ballistic solution at extended range (1200 meters).
- Aircraft Off/On Load System. Demonstrate system to air drop platforms or SOF-unique pallets without the use of material handling equipment.
- Clandestine Lighting Systems. Ground-and air-based lighting system(s) that operate at the Generation III maximum sensitivity line and focused to a tight beam.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Developmnt / Project S200

- Communications Helmet. Lightweight, protective headgear with integrated communications for use by SOF during small boat, repelling, and parachute operations.
- Hasty Hide Shelter. Lightweight, weatherproof, "quick hide" shelter for SOF personnel providing protection from detection.
- Integrated Bridge System. A system that enhances maritime craft bridge-console and operator interface through human factors engineering and integration with console design and displays.
- Intrusion Sensor. A miniature, multi-sensor system to detect local threats.
- Quick Erect Antenna. Improved antenna to reduce set-up time requirements in support of psychological operations.
- Remote Miniature Weather Station. Man-portable, air-drop capable weather sensors with a transmission system for terrestrial based unattended weather collection operations.
- Sensor Hardening. Laser protection modules for SOF electro-optic devices.
- SOF Enhanced Weapons. Weapons and munitions prototypes for increased range, improved accuracy, and improved performance against hardened targets.
- Structural Usage Monitor System. Demonstrate accurate flight regime algorithms to extend aircraft component lifetimes.
- Very Slender Vessel Technologies. Demonstrate advanced technologies to minimize signature and wave-shock impact to personnel onboard SOF maritime craft.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

- Weapons Control System. Prototype providing improved accuracy for small arms mounted on SOF water craft.

FY 1997 ACCOMPLISHMENTS:

- (2.007) SOF C4I Technologies. Completed evaluation and transition of the Inter/Intra Team Low Power Communications and began transition of Advanced Sensors (Binoculars). Continued advanced technology demonstration of the Remote Miniature Weather Station. Began development of the Quick Erect Antenna. Leveraged U.S. Air Force Sensor Hardening efforts to develop generic laser protection modules for SOF electro-optic devices. (1QTR97-3QTR97)

- (2.461) SOF Mobility Technologies. Completed demonstration and began user evaluation of the Clandestine Lighting System. Completed user evaluation of the Very Slender Vessel technologies. Continued development of Structural Usage Monitor System. Began demonstration of an Aircraft Off/On Load System and Integrated Bridge System. Began demonstration of an Aircraft Off/On Load System to provide SOF with the capability to off/on load air-drop platforms or SOF-unique pallets without the use of material handling equipment. Began development of a phase II demonstration of a lightweight, multi-fuel burning outboard engine. (1QTR97-4QTR97)

- (1.081) SOF Weapons Technologies. Completed development and began user evaluation of SOF Enhanced Weapons sight. Continued development of Weapons Control System and Advanced Sniper Weapon Fire Control. (2QTR97-3QTR97)

- (0.921) SOF Sustainment Technologies. Completed user evaluation and began transition of the Communications Helmet. Completed development and began user evaluation of the Hasty Hide Shelter. Began demonstration of an Intrusion Sensor System to provide the SOF operator with the capability to detect local threats. (1QTR97-3QTR97)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Developmnt / Project S200

- (0.434) Technology Exploitation Initiative. Exploited emerging technology to meet critical Special Operations Forces (SOF) requirements and encouraged industry and Government Lab participation in identifying enhancements to SOF in critical areas. Began an integration study to demonstrate an autonomous landing capability onboard SOF fixed wing aircraft. (3QTR97-4QTR97)

- (0.632) Classified project. Reported under separate cover. (2QTR97)

FY 1998 PLAN:

- (2.987) SOF C4I Technologies. Complete demonstration, user evaluation, and transition of Remote Miniature Weather Station, Quick Erect Antenna, and Sensor Hardening. Complete evaluation and transition of Advanced Sensors (miniature audio/visual system). Exploit emerging technology to conduct Advanced Technology Demonstrations (ATDs) that provide improvements in weight reduction, size, power consumption/management, low probability of intercept/detection, and transmission rates of SOF communication and intelligence systems. Exploit emerging technology to conduct ATDs that provide SOF with improvements in their ability to detect, track, and maintain surveillance of threats/targets. Exploit emerging technologies to conduct ATDs that provide SOF with increased situation/information awareness and intelligence awareness during their missions. (1QTR98-3QTR98)

- (2.398) SOF Mobility Technologies. Complete evaluation and transition of Clandestine Lighting System. Complete demonstration, user evaluation, and transition of Structural Usage Monitor System, Integrated Bridge System, Aircraft Off/On Load System, and Lightweight, Multi-Fuel Outboard engine. Demonstrate an ATD to provide SOF mobility platforms with enhanced visibility in adverse weather. (1QTR98-3QTR98)

- (1.071) SOF Weapons Technologies. Complete development and user evaluation of the Weapon Control System and SOF Enhanced Weapons. Continue development of the Advanced Sniper Weapon Fire Control. Exploit emerging technology to conduct ATDs that provide enhanced flexibility and increased accuracy of emplacing munitions. (1QTR98-3QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Developmnt / Project S200

- (0.616) SOF Sustainment Technologies. Complete evaluation and transition of Hasty Hide Shelter and Communications Helmet. Complete demonstration of the Intrusion Sensor System. Exploit emerging technology to integrate and demonstrate advanced authoring capability on the Maximum Efficiency Language Trainer. (1QTR98-3QTR98)

- (0.500) Technology Exploitation Initiative. Exploit emerging technology to meet critical Special Operations Forces (SOF) requirements and encourage industry and Government Lab participation in identifying enhancements to SOF in critical areas. (3QTR98)

- (0.568) Classified project. Reported under separate cover. (2QTR98)

FY 1999 PLAN:

- (2.706) SOF C4I Technologies. Continue development of FY98 new sub-projects to completion and evaluation. Continue to exploit emerging technology to conduct Advanced Technology Demonstrations (ATDs) that provide improvements in weight/volume reduction, power consumption/management, low probability of intercept/detection, and transmission rates of SOF communication and intelligence systems. Continue to exploit emerging technology to conduct ATDs that provide SOF with improvements in their ability to detect, track, and maintain surveillance of threats. Continue to exploit technology to provide SOF with increased situation/information awareness and intelligence awareness during their missions. (1QTR99-3QTR99)

- (0.425) SOF Mobility Technologies. Continue development of SOF Autonomous Landing System to completion and evaluation. (1QTR99-3QTR99)

- (1.555) SOF Weapons Technologies. Continue development of Advanced Sniper Weapon Fire Control to completion and evaluation. Continue to exploit emerging technology to conduct ATDs that provide increased lethality, enhanced flexibility, reduced weight and volume, increased accuracy, controllability, and safety of explosive charges and weapons. Continue to exploit emerging technology to conduct ATDs that provide SOF weapons with improvements in the responsiveness, stand-off, accuracy, reliability, and target effects. (1QTR99-3QTR99)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Developmat / Project S200

- (2.042) SOF Sustainment Technologies. Complete evaluation and transition of Intrusion Sensor System. Continue development of Maximum Efficiency Language Trainer to completion and evaluation. Continue to exploit emerging technology to conduct ATDs that will provide enhanced performance and sustainment of power devices for the individual SOF operator. Exploit emerging technology to conduct ATDs that provide SOF combat swimmers with improved mission readiness. (1QTR99-3QTR99)

- (0.500) Technology Exploitation Initiative. Exploit emerging technology to meet critical Special Operations Forces (SOF) requirements and encourage industry and Government Lab participation in identifying enhancements to SOF in critical areas. (3QTR99)

- (0.792) Classified Project. Reported under separate cover. (1QTR99-2QTR99)

ACQUISITION STRATEGY: NA

B. Program Change Summary	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	7.602	8.009	8.171	Cont.
Appropriated Value	7.927	9.009		
Adjustments to Appropriated Value / President's Budget	(0.391)	(0.869)	(0.151)	
Current Budget Submit	7.536	8.140	8.020	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160402BB Special Operations Advanced Technology Development / Project S200

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for the Small Business Innovative Research (SBIR) program and implementation of Congressional Defense reductions. FY 1998 decrease is project cost share for SBIR, Congressional inflation adjustments and supplemental bills. FY 1999 decrease is for Congressional inflation adjustments.

Schedule: None.

Technical: None.

C. Other Program Funding Summary NA.

D. Schedule Profile NA.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE FEBRUARY 1998							
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development								
COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
PE 1160404BB Special Operations Tactical Systems Development	92.153	99.654	106.238	88.535	113.698	108.635	83.577	Cont.	Cont.
D476, PSYOPS Advanced Development	0.814	0.557	1.466	2.574	1.080	2.571	0.310	Cont.	Cont.
D615, SOF Aviation	2.145	5.508	7.935	6.495	11.489	5.051	12.361	Cont.	Cont.
SF100, Aviation Systems Advanced Development	1.570	1.645	6.639	16.047	22.361	15.785	15.103	Cont.	Cont.
SF200, CV-22 SOF Osprey	0	0	0	9.769	10.130	9.870	11.097	Cont.	Cont.
S0417, Underwater Systems Advanced Development	25.545	56.171	43.563	5.098	12.091	10.038	5.582	Cont.	Cont.
S1684, SOF Surface Craft Advanced Development	5.355	0	0	0	2.895	5.794	4.825	Cont.	Cont.
3284, SOF Aircraft Defensive Systems	6.413	9.041	7.579	19.619	16.937	11.068	9.717	Cont.	Cont.
3326, AC-130U	15.185	5.264	3.106	1.352	1.336	0.734	0.737	6.699	Cont.
3642, Aircrew Training Systems	3.778	0	0	0	0	0	0	0	204.646
S350, Special Operations Forces Planning and Rehearsal System	5.739	5.182	3.633	3.707	3.433	3.184	2.934	Cont.	Cont.
S375, Weapons and Support Systems	3.790	3.790	1.241	3.999	2.453	0.450	0.268	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
Advanced Development									
S625, SOF Training Systems	10.030	7.844	23.843	11.078	12.539	28.389	1.876	Cont.	Cont.
S700, Communications Advanced Development	1.905	1.226	2.734	2.523	2.156	2.002	2.137	Cont.	Cont.
S800, Special Operations Munitions Advanced Development	9.846	3.414	4.499	6.274	14.798	13.699	16.630	Cont.	Cont.
S900, Special Operations Miscellaneous Equipment Development	0.038	0.012	0	0	0	0	0	0	8.417

A. Mission Description and Budget Item Justification

Projects provide for development, testing, and integration of specialized equipment to meet the unique requirements of Special Operations Forces (SOF). Specialized equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. These operations are generally conducted in harsh environments, for unspecified periods and in locations requiring small unit autonomy. SOF must infiltrate by land, sea, and air to conduct unconventional warfare, direct action, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D476

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
D476, PSYOP Advanced Development	0.814	0.557	1.466	2.574	1.080	2.571	0.310	Cont.	Cont.

A. Mission Description and Budget Item Justification

This program provides for the development and acquisition of Psychological Operations (PSYOP) equipment. The purpose of PSYOP is to reinforce foreign or hostile attitudes and behavior favorable to U.S. national objectives. New and emerging national, regional, and ethnic power groupings and religious fanaticism have increased threats of terrorism, insurgency, instability, and subversion. Successful PSYOP can lower the morale and reduce efficiency of enemy forces and create dissidence and dissatisfaction within their ranks. This project funds replacement of existing 1950's and 1960's technology equipment currently employed, and provides enhanced capability to conduct tactical and theater-level PSYOP dissemination in support of regional unified commanders and their deployed task forces. The PSYOP programs funded in this project are grouped by the level of organization they support: Operational Element (Team) and Above Operational Element (Deployed). Sub-projects include:

OPERATIONAL ELEMENT (TEAM)

- Leaflet Delivery System (LDS). LDS are a family of systems which provides PSYOP forces the ability to safely and accurately disseminate small to large quantities of PSYOP products (leaflets) over small to large area targets in all threat environments. LDS include remote-controlled systems which can be employed from perimeter areas; payloads which can be delivered from unmanned aerial vehicles; high altitude low opening delivery systems delivered by manned aircraft. In order to accurately deliver leaflets in denied, hostile, or remote areas, some LDS will require homing and guidance systems, timers, and barometric devices for activating at pre-designated altitudes and locations. The LDS family will be varied to allow PSYOP and supporting forces to choose the appropriate system for product dissemination based on policy, operational requirements, delivery platform availability, and environmental restrictions such as wind velocities and hostile fire.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D476

- Family of Loudspeakers (FOL). The FOL will consist of modular amplifiers and speakers that can be interconnected to form sets of loudspeakers that will provide high quality recorded audio, live dissemination, and acoustic deception capability. FOL will be transported, operated, and mounted in ground vehicles, watercraft, rotary wing aircraft, and dismounted for ground operations (tripod/manpack). FOL will replace current AN/UIH-6 (250 watt) Public Address System; AN/UIH-6A (450 watt); AEM-1492D (900 watt); and LSS-40 (AN/PIH-1) portable loudspeakers. FOL will permit the conduct of loudspeaker missions over larger areas than present equipment capability and will provide a greater stand-off distance for U. S. Forces/assets.

ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- Special Operations Media System B (SOMS B). A rapid deployable, C-130 drive on/drive off tactical radio/TV broadcast, reception and electronic news gathering system. This system replaces 1950-1960s technology and enhances the capability to conduct tactical level PSYOP dissemination in support of regional unified commanders. Reduces the airlift requirement from 7 C-130 aircraft to 2 C-130 aircraft.

- PSYOP Broadcasting System (POBS), formerly Special Operations Media System A (SOMS A). POBS provides an operational/strategic mobile television/radio wide area broadcast system capability. It will receive and transmit real-time PSYOP products to and from commercial and military sources by satellite and microwave. POBS will beinteroperable with the fixed site media production center at Fort Bragg, NC, Theater Media Production Center, Air National Guard Commando Solo aircraft, and the tactical SOMS B.

- Deployable Print Production Center (DPPC). A rapid deployable, state-of-the-art computerized digital system capable of creating, editing and producing printed PSYOP products in forward locations and remote sites. The DPPC will be shelter-mounted on a heavy HMMWV with C-130 roll-on/roll-off capability. The system is comprised of a computerized development workstation with multiple input sources (graphics, color scanner, etc.), desktop publishing, highspeed digital color duplicator, and paper cutter. Reduces airlift from one C-5 aircraft to one C-130 aircraft. With this capability, PSYOP forces will now be able to respond and deploy rapidly to forward locations and remote sites in support of Theater CINC OPLANS and CONPLANS, with the ability to produce PSYOP printed products immediately upon arrival.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D476

FY 1997 ACCOMPLISHMENTS:

- (0.244) Special Operations Media System B (SOMS B). Completed operational testing and obtained Milestone III decision. (1QTR97-4QTR97)
- (0.282) PSYOP Broadcasting System (POBS). Conducted Milestone 0 review. Began research and development efforts with analysis of SOMS B lessons learned and market research of available non-developmental item equipment. Initiated POBS architecture study group. Updated POBS concept study. (2QTR97-3QTR97)
- (0.188) Leaflet Delivery System (LDS). Conducted Milestone 0 review. Updated LDS concept study. (4QTR97)
- (0.100) Deployable Print Production Center. Conducted testing of low rate initial production systems. (4QTR97-1QTR98)

FY 1998 PLAN:

- (0.400) Family of Loudspeakers. Conduct environmental and operational testing of low rate production systems. (3QTR98)
- (0.050) POBS. Conduct Milestone I/II reviews. Complete market research and finalize system specifications and configuration for PSYOP Distribution System variant. (1QTR98-4QTR98)
- (0.107) Leaflet Delivery System. Conduct Milestone I, II, and III reviews. Complete development and operational test for first LDS Variant. (2QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D476

FY 1999 PLAN:

- (1.466) PSYOP Broadcasting System (POBS). Conduct environmental and operational testing of PSYOP Distribution System, Theater Media Production System, and flyaway broadcast capabilities. (1QTR99-4QTR99)

ACQUISITION STRATEGY: NA

B. Program Change Summary	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	0.660	1.199	14.477	Cont.
Appropriated Value	0.484	1.199		
Adjustments to Appropriated Value / President's Budget	0.330	(0.642)	(13.011)	
Current Budget Submit	0.814	0.557	1.466	Cont.

Change Summary Explanation:

Funding: FY 1997 increase was for operational testing of the Special Operations Media System B (SOMS B). FY1998 decrease is to fund higher priority USSOCOM projects. FY 1999 decrease is due to a change in PSYOP Broadcasting System acquisition strategy to procure multiple individual "Block" components rather than a full Engineering Development Model (EDM). RDT&E funds for the EDM were moved to other higher priority requirements.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D476

Schedule: None.

Technical: None.

C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, Psyop Equipment	3.721	10.127	9.518	8.315	6.730	6.929	10.131	Cont.	Cont.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Special Operations Media System B (SOMS B)																
DT					x	x										
OT							x									
FUE								x								
MS-III								x								
Family of Loudspeakers																
Low Rate Initial Production Testing											x					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D476

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PSYOP Broadcasting System																
MS 0						x										
Update Architecture Study						x	x									
MS I											x					
MS II											x					
DT/OT Block 1													x			
MS III															x	
DT/OT Block 2															x	x
Leaflet Delivery System								x								
MS 0											x					
MS I/II												x				
DT/OT												x				
MS III								x	x							
Deployable Print Production Center																
Low Rate Initial Production Testing																

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project D476		
A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. Special Operations Media System - B			
Operational Testing	0.244		
2. Family of Loudspeakers			
Low Rate Initial Production Testing		0.400	
3. PSYOP Broadcasting System			
Contractor Engineering Support	0.282		0.150
Government Engineering Support		0.050	0.100
Testing/Documentation			1.216
4. Leaflet Delivery System			
Contractor Engineering Support	0.138	0.078	
DT/OT	0.050	0.029	
5. DPPC			
Low Rate Initial Production Testing	0.100		
TOTAL:	0.814	0.557	1.466

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project D476

B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
USSOCOM, Tampa, FL	REQN	Various	Cont.	Cont.	0.142					Cont.	Cont.
Army, CECOM, Ft. Monmouth, NJ	ALLOT	Various	Cont.	Cont.	6.104					Cont.	Cont.
DOE, Nat'l Engr Lab, Idaho Falls, ID	MIPR	May-93	Cont.	Cont.	3.240					Cont.	Cont.
Natick Lab, Natick, MA	MIPR	Various	Cont.	Cont.						Cont.	Cont.
NAWC-AD, St. Indigoes, MD	MIPR	Various	Cont.	Cont.			0.132				
Miscellaneous	Various	Various	Cont.	Cont.					0.100		N/A
Support and Management Organizations											
MITRE, McLean, VA	MIPR	Various	Cont.	Cont.			0.075		0.075		
SOFSA, Lexington, KY	MIPR	May-93	Cont.	Cont.	0.053						
LOGSA, Redstone Arsenal, AL	MIPR	Various	Cont.	Cont.	0.291					Cont.	Cont.
Booz-Allen Hamilton, McLean, VA	CPFF	Oct-93	Cont.	Cont.	0.077		0.150	0.078		Cont.	Cont.
Miscellaneous	Various	Various	Various	Various	0.072			0.046	0.075	Cont.	Cont.
Test and Evaluation Organizations											
JITC, Ft. Huachuca, AZ	MIPR	Mar-94			0.202		0.178		1.216	Cont.	Cont.
Army ATC, Aberdeen Proving Grounds, MD	MIPR	Aug-94			0.225		0.166	0.400		Cont.	Cont.
Miscellaneous	Various	Various	Various	Various			0.113	0.033			N/A

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					9.486		0.132	0.000	0.100	Cont.	Cont.
Subtotal Support and Management					0.493		0.225	0.124	0.150	Cont.	Cont.
Subtotal Test and Evaluation					0.427		0.457	0.433	1.216	Cont.	Cont.
Total Project					10.406		0.814	0.557	1.466	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D615

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
D615, SOF Aviation	2.145	5.508	7.935	6.495	11.489	5.051	12.361	Cont.	Cont.

A. Mission Description and Budget Item Justification

A requirement exists to provide aviation support to Special Operations Forces (SOF) in world-wide contingency operations and low-intensity conflicts. The specialized aircraft for these missions must be capable of rapid deployment and undetected penetration of hostile areas. These aircraft must be capable of operating at extended ranges under adverse weather conditions to infiltrate, provide logistics for, reinforce, and extract SOF. The threat is characterized by an extensive and sophisticated ground based air defense system and an upgraded air-to-air capability targeted against helicopters. Third World operations are apt to involve greater distances and more challenging geographical environmental conditions than the European theater. This project will develop/upgrade the Special Operations rotary wing aircraft systems that will be capable of successful operations in these increasingly hostile environments. Rotary wing systems supported by this project include: A/MH-6, MH-60G/L/K, MH-53J, TH-53A, and MH-47D/E. Efforts include:

- A/MH-6. (1) Develops lightweight, rapid reconfigurable mission support equipment. (2) Prototypes and tests structural fuselage modifications to increase the maximum gross weight by 25%.

- MH-47/MH-60K. (1) Develops and tests aircraft survivability equipment hardware and software. (2) Develops and tests the MH-60 fuel control system, conducts Congressionally mandated Live Fire testing on the MH-47E and MH-60K, develops and tests ballistically tolerant composite small arms protection system for vulnerable helicopter systems. (3) Develops and tests cockpit, hardware, and software improvements to communication and navigation systems. (4) Develops, procures and installs a system that inerts (exchanging oxygen with nitrogen) in the main and auxiliary fuel tanks to improve survivability from small arms fire.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D615

- MH-53J. Conducts independent verification and validation of the software modules developed for the Interactive Defensive Avionics System/Multi-Mission Advanced Tactical Terminal modification.

FY 1997 ACCOMPLISHMENTS:

- (0.243) MH-53J. Conducted independent verification and validation of software module changes developed for Interactive Defensive Avionics System/Multi-Mission Advanced Tactical Terminal modification. (2QTR97-3QTR97)

- (0.902) MH-47/MH-60. Developed software and hardware to accommodate U.S. Army funded common engineering change proposals for the CH-47D and UH-60L in SOF MH-47E/MH-60K aircraft. (2QTR97-3QTR97)

- (1.000) A/MH-6. Continued Full Authority Digital Electronic Control development and testing. (1QTR97-4QTR97)

FY 1998 PLAN:

- (2.638) MH-47/MH-60. Develop and prototype a power amplifier to improve the effectiveness of the continuous wave/pulse wave jamming systems and an exhaust suppressor to reduce the infrared signature of the MH-47 helicopter. (1QTR98-2QTR98)

- (1.245) MH-47/MH-60. Develop and test integrated fuel management system for the MH-60 helicopter. Design and start development of a ballistically tolerant composite small arms protection system. (1QTR98-2QTR98)

- (0.633) MH-47/MH-60. Start integration and testing of a digital map system for the MH-47D and MH-60L Direct Action Penetrator. Start development of the weather radar drop-in card for the Multi-Mode Radar for the MH-47E and MH-60K. (2QTR98-3QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D615

- (0.992) A/MH6. Develop lightweight, rapid reconfigurable mission support equipment. Prototype and test structural fuselage modifications to increase the maximum gross weight by 25%. (1QTR98-2QTR98)

FY 1999 PLAN:

- (5.260) MH-47/MH-60. Start development of Onboard Inert Gas Generation System. Start development and integration of an Aircraft Survivability Equipment controller. Start integration and testing of an Infrared Jammer on the MH-47 helicopter. (1QTR99-3QTR99)

- (0.502) MH-47/MH-60. Conduct Congressionally mandated Live Fire Testing on MH-47E/MH-60K components. Continue development of a ballistically tolerant composite small arms aircraft protection system. (2QTR99-3QTR99)

- (1.733) MH-47/MH-60. Continue integration and testing of a digital map system for the MH-47D and the MH-60L Direct Action Penetrator. Continue development of the weather radar drop-in card for the Multi-Mode Radar for the MH-47E and MH-60K. (1QTR99-2QTR99)

- (0.440) A/MH-6. Continue development of lightweight, rapid reconfigurable mission support equipment. (1QTR99-2QTR99)

ACQUISITION STRATEGY: NA.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D615

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	2.145	5.942	7.220	Cont.
Appropriated Value	2.163	5.942		
Adjustments to Appropriated Value / President's Budget	(0.018)	(0.434)	0.715	
Current Budget Submit	2.145	5.508	7.935	Cont.

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for the Small Business Innovative Research program and implementation of Congressional Defense reductions. FY 1998 decrease is project cost share for SBIR, Congressional inflation adjustments and supplemental bills. FY 1999 adjustment is an increase for the MH-47/MH-60 onboard inert gas generation system offset by a reduction in estimated cost for Congressionally mandated live fire tests for the same aircraft.

Schedule: None.

Technical: None.

C. Other Program Funding Summary

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project D615

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, Rotary Wing Upgrades & Sustainment	5.811	34.791	46.990	48.585	29.714	27.874	50.046	Cont.	Cont.
PROC, OH-6 Proc/Mods		7.712							15.023

D. Schedule Profile	FY96 1	2	3	4	FY97 1	2	3	4	FY98 1	2	3	4	FY99 1	2	3	4
IDAS/MATT IV&V Contract Award		x														
A/MH-6 FADEC Contract Award						x										
Mission Enhanced Little Bird MS IIIB									x							
MH-47E/MH-60K																
Begin ECP Integration						x										
Power Amplifier Contract Award										x						
MH-60 Fuel Panel Contract Award											x					
ASE Controller Contract Award													x			
Multimode Radar Weather Card MS II														x		
Onboard Inert Gas Generation System Contract Award														x		

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project D615	

A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. MH-53J IDAS/MATT Modification	0.243		
2. MH-47/MH-60 Modifications	0.902	4.516	7.495
3. A/MH-6 Modifications	1.000	0.992	0.440
TOTAL:	2.145	5.508	7.935

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project D615

B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
IDAS/MATT, WR-ALC	Various	Various			0.594		0.243				0.837
ALQ-162, WR-ALC, NAS	Various	Various			0.133						0.133
MH-47/60, PM TAPO	Various	Various	Various				0.727	3.839	6.474	Cont.	Cont.
A/MH-6, PM-MELB	Various	Various	Various		2.500		1.000	0.843	0.440	Cont.	Cont.
Support and Management Organizations											
IDAS/MATT, WR-ALC	Various	Various			0.105						0.105
MH-47/60, PM TAPO	Various	Various	Various							Cont.	Cont.
Test and Evaluation Organizations											
IDAS/MATT, AFOTEC	Various	Various			0.070						0.070
MH-47/60, PM TAPO	Various	Various	Various				0.175	0.677	1.021	Cont.	Cont.
A/MH-6, PM-MELB	Various	Various	Various	Various				0.149		Cont.	Cont.

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					3.227		1.970	4.682	6.914	Cont.	Cont.
Subtotal Support and Management					0.105		0.000	0.000	0.000	Cont.	Cont.
Subtotal Test and Evaluation					0.070		0.175	0.826	1.021	Cont.	Cont.
Total Project					3.402		2.145	5.508	7.935	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
SF100, Aviation Systems Advanced Development	1.570	1.645	6.639	16.047	22.361	15.785	15.103	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project investigates already developed and maturing technologies that have direct application for the development and procurement of specialized equipment to meet unique SOF aviation requirements. Timely application of SOF-unique technology is critical and necessary to meet requirements in such areas as: Low Probability of Intercept/Low Probability of Detection (LPI/LPD) radio frequency radar; LPI formation/rendezvous flight; digital terrain elevation data and electronic order of battle; digital maps; LPI radar altimeter; display technology; situational awareness; near-real-time intelligence to include data fusion; laser radar/millimeter wave radar obstacle avoidance; imagery; threat detection and avoidance; electronic support measures for threat geolocation and specific emitter identification; navigation; target detection and identification technologies; and studies for future SOF aircraft requirements. Sub-projects include:

- AC-130H Weight Reduction. This program removes weight by redesigning the current 40mm and 105mm ammo racks using a lighter weight material; rebuilding the 40mm and 105mm trainable 9vn mounts, using lighter weight material; removing and replacing selected driver with lighter weight material; removing the 20mm gun; modifying the Pitot Static System; and removing the ASD-5-A System.

- AC-130H Low Light Level TV. This program upgrades/replaces the following high failure components: AJQ-24 Pedestal, AAQ-17 Laser Illuminator, and AXQ-17 Camera.

- AC-130U P3I. Provides correction of system deficiencies and enhancement of mission capabilities for 13 AC-130U Gunships. Develops fixes for problems identified under the original AC-130U development contract, but determined to be out of scope for that effort.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

- Aviation Engineering Analysis. Provides a rapid response capability to support SOF fixed wing aircraft. The purpose is to correct systems deficiencies, improve asset life, and enhance mission capability through the means of feasibility studies and engineering analyses. The sub-project provides the engineering required to improve the design and performance integrity of the aircraft support systems, sub-systems equipment, and embedded computer software as they relate to the maintenance, overhaul, repair, quality assurance, modifications, material improvements and service life extensions.

FY 1997 ACCOMPLISHMENTS:

- (1.042) Aviation Engineering Analysis. Conducted a vulnerability assessment study for the AC-130H weight reduction effort and continue engineering analyses of SOF Fixed Wing Aircraft Avionics and Sensors. (2QTR97)

- (0.200) AC-130H Weight Reduction. Began engineering management support of the development/design of a prototype ammo rack. (3QTR97-4QTR97)

- (0.328) AC-130H Low Light Level TV. Completed a preliminary engineering study effort on the AC-130H Low Light Level TV upgrade program. (2QTR97)

FY 1998 PLAN:

- (0.110) AC-130H Weight Reduction. Continue engineering management support of the development/design of a prototype ammo rack and gun mounts. (2QTR98)

- (0.767) AC-130U P3I. Begin activities for upgrade of All Light Level Television Laser Illuminator Assembly. (3QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

- (0.768) Aviation Engineering Analysis. Continue engineering analyses of SOF Fixed Wing Aircraft Avionics and Sensors. (1QTR98-4QTR98)

FY 1999 PLAN:

- (0.724) AC-130H Weight Reduction. Complete engineering management support on prototype ammo rack and gun mounts. Begin program management support of the development of new lighter weight armor panels. (1QTR99)

- (4.976) AC-130U P3I. Begin development efforts for replacement of theGunship's ALR-56 radar warning receiver to solve performance problems and increase commonality with other SOF Weapon Systems. (2QTR99)

- (0.939) Aviation Engineering Analysis. Conduct a study for improvements to situational awareness for the AC-130U Gunship. Continue engineering analysis of SOF Fixed Wing Aircraft Avionics and Sensors. (1QTR99-4QTR99)

ACQUISITION STRATEGY:

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- AC-130U P3I, ALR-56 Replacement. Pursue a phased replacement of existing ALR-56 Radar Warning Receiving (RWR) with SOF-common ALR-69 RWR to increase capability and system commonality.

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	1.570	2.396	16.588	Cont.
Appropriated Value	4.006	2.396		
Adjustments to Appropriated Value / President's Budget	(2.436)	(0.751)	(9.949)	
Current Budget Submit	1.570	1.645	6.639	Cont.

Change Summary Explanation:

Funding: FY 1997 and FY 1998 decrease is project cost share for the Small Business Innovative Research program and implementation of Congressional reductions. The FY 1999 decrease is due to a one year delay in design start for the MC-130H air refueling modification and program restructure to support higher command priorities.

Schedule: One year delay in start of MC-130H air refueling modification.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project SF100

C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, C-130 Mods*	0.066	8.981	22.484	18.661	20.766	42.128	44.077	Cont.	Cont.

*Includes C-130 Modifications sub-line item funds for AC-130H Low Light Level Television replacement, AC-130U P3I, AC-130H Armor Reconfiguration, AC-130H Weight Reduction and AC-130H Ammo Racks, and MC-130H Air Refueling Modification.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AC-130H LLLTV Contract Award for Studies			x													
AC-130U ALR-56 Replacement Study										x						
AC-130H Vulnerability Assessment Study Award						x										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project SF100	

A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. AC-130H Low Light Level TV Replacement	0.328		
2. SOF Aviation Engineering Analyses	1.042	0.768	0.939
3. AC-130U P3I		0.767	4.976
4. AC-130H Weight Reduction	0.200	0.110	0.724
TOTAL:	1.570	1.645	6.639

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project SF100

B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
Texas Instruments (AN/AAQ-17)	SS/FFP	Aug-95	6.225	6.225	6.225						6.225
TBD Contractor (AC-130U P3I)	TBD	TBD		TBD				0.767	4.976	Cont.	Cont.
TBD Contractor (LPI Penaids)	SS/FP	Mar-96		TBD	8.436						8.436
Lockheed Martin (LLLTV)	SS/T&M	Apr-96		3.312	2.984		0.328				3.312
Lockheed Martin (Weight Reduction)	SS/TBD	Feb-97	TBD	TBD			0.850		0.544		Cont.
Various	Various				3.622		0.207	0.798	0.969	Cont.	Cont.
Support and Management Organizations											
SSAI (AC-130H Weight Reduction)	C/CPFF	Jun-97	0.185	0.185			0.185	0.080	0.150		0.415
Booz-Allen & Hamilton (LPI Penaids)	C/CPFF	Jan-95			2.244						2.244
Test and Evaluation Organizations											

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					21.267		1.385	1.565	6.489	Cont.	Cont.
Subtotal Support and Management					2.244		0.185	0.080	0.150	0.000	2.659
Subtotal Test and Evaluation					0.000		0.000	0.000	0.000		
Total Project					23.511		1.570	1.645	6.639	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S0417, Underwater Systems Advanced Development	25.545	56.171	43.563	5.098	12.091	10.038	5.582	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project funds the development of SEAL support items used during the conduct of hydrographic/inland reconnaissance, beach obstacle clearance, underwater ship attack, and other direct action missions. Sub-projects include:

- Advanced SEAL Delivery System (ASDS). The ASDS is a manned combatant submersible used for the clandestine delivery of SOF personnel and weapons. The ASDS will provide the requisite range, endurance, payload, and other capabilities for operation in the full range of threat environments.

- Undersea Systems. Development of undersea systems which provide the SOF combat swimmers with the necessary diving and diving related equipment to fulfill assigned underwater combat missions include the following:

  - Naval Special Warfare Mine Countermeasures (NSWMCM). Phased development/improvement of low magnetic and acoustic signature equipment to support the combat swimmer in the NSWMCM operational environment.

  - Non-Gasoline Burning Outboard Engine. Development of a submersible outboard engine, which does not use highly volatile gasoline, for use on SOF Combat Rubber Raiding Craft.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

FY 1997 ACCOMPLISHMENTS:

- (24.955) Advanced SEAL Delivery System (ASDS). Closed out all critical design review items. Conducted remainder of production readiness reviews. Continued fabrication of prototype/first ASDS vehicles. Continued training of Navy crews. Completed first SSN-688 host ship conversion. Pressure hull delivered and painted. Integrated Command and Display (ICAD) delivered. Integration of internal components into the pressure hull is now underway. (1QTR97-4QTR97)

- (0.590) Non-Gasoline Burning Outboard Engine (NBOE). Continued development of prototype engine. Initiated early user assessment of prototype engine in the 3rd quarter (April, 1997). (1QTR97-4QTR97)

FY 1998 PLAN:

- (54.453) ASDS. Continue integration of the pressure hull and internal components (including ICAD) for the prototype/first ASDS vehicle. Continue design/fabrication of fairing and procure first set of batteries. Acquire peculiar support equipment and spares. Commence curriculum development. Complete first article test of batteries and begin fabrication of production batteries for the first vehicle. (1QTR98-4QTR98)

- (0.951) Naval Special Warfare Mine Countermeasures. Continue development of integrated sensor navigation system and remote command detonation device. (1QTR98-4QTR98)

- (0.767) NBOE. Continue development and developmental testing and accomplish Milestone II. (1QTR98-4QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

FY 1999 PLAN:

- (41.846) Advanced SEAL Delivery System (ASDS). Complete integration of the prototype and certification (SUBSAFE) of the first ASDS vehicle. Conduct final operational test and evaluation of the firsts ASDS in shallow and deep water test sites. Primary host fitup and sea trials of the first vehicle. (1QTR99-4QTR99)

- (0.977) Naval Special Warfare Mine Countermeasures. Continue development of integrated sensor navigation system and remote command detonation device. (1QTR99-4QTR99)

- (0.740) Non-Gasoline Burning Outboard Engine. Conduct operational testing and accomplish Milestone III. (1QTR99-2QTR99)

ACQUISITION STRATEGY:

- ASDS. Selected three qualified companies to develop independent preliminary designs. Following completion of the preliminary design efforts, a request for proposal for the engineering and manufacturing development contract was released to these companies for proposal submittal for the design, fabrication, and test of the first ASDS. A single contractor was selected based on a best value source selection process. The follow-on procurement for production systems are under review.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	21.796	24.229	2.318	Cont.
Appropriated Value	21.793	60.629		
Adjustments to Appropriated Value / President's Budget	3.752	(4.458)	41.245	
Current Budget Submit	25.545	56.171	43.563	Cont.

Change Summary Explanation:

Funding: FY 1997 increase reflects realignment into the Advanced SEAL Delivery System (ASDS) program. FY1998 decrease is project cost share for the Small Business Innovative Research program and Congressional inflation adjustments and supplemental bills. FY 1999 adjustment reflects restructuring of the ASDS (40.505) and Non-Gasoline Burning Outboard Engine (NBOE) (0.740) programs.

Schedule: Milestone III for ASDS slipped from FY 1999 to FY 2000. Milestone II for NBOE slipped from 4QTR97 to 3QTR98. Milestone III for NBOE slipped from 4QTR98 to 2QTR99.

Technical: None.

C. Other Program Funding Summary

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S0417

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
ASDS									
PROC, ASDS		4.339	10.251	45.138	52.678	48.857	4.872	Cont.	Cont.
PROC, ASDS Adv Proc	4.400	0.352	0.293	2.520	2.585				
NSWMCM									
PROC, Maritime Equip.				0.870	2.022	5.847	10.529	Cont.	Cont.
NBOE									
PROC, Maritime Equip.			1.464	0.688				Cont.	Cont.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced SEAL Delivery System																
Complete Critical Design Reviews					x											
Start Testing First Unit														x		
Non-Gasoline Burning Outboard Engine																
Milestone II											x					
Milestone III														x		
NSW Mine Countermeasures																
Milestone I										x						

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S0417	

A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. Advanced SEAL Delivery System			
Detailed Design / Manufacturing Developing	24.277	53.763	41.141
Program Management Office Support	0.678	0.690	0.705
2. Other Undersea Systems			
Naval Special Warfare Mine Countermeasures Engineering and Manufacturing Development		0.951	0.977
Non-Gasoline Burning Outboard Engine Development	0.590	0.767	0.740
TOTAL:	25.545	56.171	43.563

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S0417

B. Budget Acquisition History and Planning Information

Performing Organizations — Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
ASDS, Nothrop Grumman, MD	C/CPIF	Sep-94			65.778		24.227	53.763	41.141		184.909
ASDS, Newport News Shipbuilding, VA	CPFF	Apr-95			9.000						9.000
SDV, NSWCm Coastal Systems Station	WR	Various			11.719						11.719
NSWMCM, TBD	Various	Various			1.631			0.880	0.891	Cont.	Cont.
NBOE, CSS	Various	Various			0.323		0.480	0.516	0.393		1.712
Project Classified					5.167						5.167
Support and Management Organizations											
ASDS, NAVSEASYSCOM (PM0)	WR	Various			1.810		0.678	0.690	0.705		Cont.
ASDS, P3I	WR	Various			4.208						4.208
SDV, NAVSEASYSCOM	WR	Various			0.374						0.374
NSWMCM, NAVSEASYSCOM	WR	Various			0.223			0.071	0.086	Cont.	Cont.
NBOE, CSS	WR	Various			0.075		0.110	0.113	0.147		0.445
Test and Evaluation Organizations											
ASDS, COMOPTEVFOR	WR	Jun-97					0.050				0.050
NBOE, CSS	WR	Various						0.138	0.200		0.338

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					93.618		24.707	55.159	42.425	Cont.	Cont.
Subtotal Support and Management					6.690		0.788	0.874	0.938	Cont.	Cont.
Subtotal Test and Evaluation					0.000		0.050	0.138	0.200	0.000	0.388
Total Project					100.308		25.545	56.171	43.563	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3284

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
3284, SOF Aircraft Defensive Systems	6.413	9.041	7.579	19.619	16.937	11.068	9.717	Cont.	Cont.

A. Mission Description and Budget Item Justification

Project provides definition, development, prototyping and testing of aircraft defensive avionics systems. The project will identify hardware and software enhancements for each Special Operations Forces (SOF) aircraft that will reduce detection, vulnerability, and threat engagement from threat radars thereby increasing the overall survivability of SOF assets. This project will identify and develop enhancements to each platform to meet the projected threat. Recommendations for equipment modification or replacement will be developed by each System Program Manager based upon the results of on-going engineering assessments and user operational requirements. This project is funding: dispenser upgrade and improvement programs, threat and missile warning receiver enhancements, radio frequency (RF) jammer improvements, and development of AC-130 Engine Infrared Suppression System and infrared jamming system. Project also provides systems for SOF-unique portions of the Warner Robins-Air Logistics Center Electronic Warfare Avionics Integrated Systems Facility (EWAISF). Sub-projects include:

- ALQ-172 Electronic Countermeasures (AC-130U/MC-130H). A modification of the ALQ-172 radio frequency jammer that improves capability by adding low band jamming coverage for thirteen AC-130U Gunships and 24 MC-130H Combat Talon II aircraft.

- C-130 Engine Infrared Suppression (AC-130H/U, MC-130E/H, HC-130P/N, EC-130E). A program to develop and install an engine infrared (IR) signature suppression system on specific AFSOC C-130 aircraft. The signature will reduce the IR signature of these aircraft, thereby reducing their susceptibility to Generation I and II IR missile threats.

- Directional Infrared Countermeasures (DIRCM). A joint international cooperative United Kingdom/United States project to develop a jammer for MC-130E/H and AC-130H/U aircraft capable of countering missile threats in the band one, two and four infrared frequency spectrum.

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- Electronic Warfare Avionics Integrated Systems Facility (EWAISF). The EWAISF directly supports software development and testing. The EWAISF effort is a type of Systems Integration Laboratory designed to support the incorporation of SOF aircraft defensive systems modifications into specific SOF platforms.

FY 1997 ACCOMPLISHMENTS:

- (3.613) Directional Infrared Countermeasures (DIRCM). Continued to support a cooperative UK/US development/production program for 59 SOF C-130 aircraft. (1QTR97-1QTR98)

- (2.800) EWAISF. Updated the AAR-44 Integrated Support Station. (1QTR97)

FY 1998 PLAN:

- (6.979) DIRCM. Continue to support a cooperative UK/US development/production program for 59 SOC C-130 aircraft. (1QTR98-3QTR99)

- (0.299) ALQ-172 Electronic Countermeasures. Begin test and program office support of ALQ-172 Low Band Jammer installation on 13 AC-130U and 24 MC-130H aircraft. (1QTR98-4QTR98)

- (1.763) EWAISF. Continue to support laboratory efforts to include update of the Infrared Integrated Support Station. (2QTR98)

FY 1999 PLAN:

- (2.546) C-130 Engine Infrared Suppression. Competitively select up to two contractors to enter Engineering and Manufacturing Development. (1QTR99-3QTR99)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3284

- (2.011) Directional Infrared Countermeasures (DIRCM). Continue to support a cooperative UK/US development/production program for 59 SOF C-130 aircraft. (1QTR99-4QTR99)

- (1.563) ALQ-172 Electronic Countermeasures. Continue test and program management support of the ALQ-172 Low Band Jammer modification. (1QTR99-4QTR99)

- (1.459) Electronic Warfare Avionics Integrated Systems Facility (EWAISF). Continue to support laboratory efforts to include update of the ALQ-196 Integrated Support Station. (1QTR99)

ACQUISITION STRATEGY:

- ALQ-172 Electronic Countermeasures. Compete as part of the Integrated Weapons Systems Support Program (IWSSP) competition. The ALQ-172 program will be awarded as a separate task under the basic IWSSP contract.

- DIRCM. The Memorandum of Agreement between the UK/US established the cooperative international DIRCM program. The UK Ministry of Defence is the lead for the program. UK law applies to all acquisition actions. USSOCOM program manager is the US deputy to the UK Directional Infrared Countermeasures program manager.

- EWAISF. Award sole source contracts to the manufacturer of the prime mission equipment required for hardware and hardware/software integration into the EWAISF.

- C-130 Engine Infrared Suppression. Produce request for proposals and competitively select up to two contractors to enter EMD. Down select to one contractor after prototype evaluation (post critical design review). This program is a continuing effort, based upon lessons learned, from a previous suppression program. A market survey was done (to minimize risk) which proved the maturity of the technology that is available in the industry today.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3284

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	6.413	8.155	5.464	Cont.
Appropriated Value	6.567	8.155		
Adjustments to Appropriated Value / President's Budget	(0.154)	0.886	2.115	
Current Budget Submit	6.413	9.041	7.579	Cont.

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for implementation of Congressional Defense reductions. FY 1998 increase is due to a slip in the development testing for DIRCM. FY 1998 decreased for Congressional inflation adjustments and supplemental bills. FY 1999 increase is due to revised research and development cost estimates for the ALQ-172 Electronic Countermeasures and C-130 Engine Infrared Suppression programs (some FY 1999 decreases occurred due to repricing of budgets to reflect Administration's revised economic assumptions forecast and program restructure to support higher command priorities).

Schedule: None.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3284

C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, C-130 Mods*	34.411	66.287	31.022	132.847	88.372	54.189	63.621	Cont.	Cont.

* Includes C-130 Modifications sub-line item funds for ALE-47 Chaff and Flare Dispenser, DIRCM (P3I), APR-46 Improvements, ALQ-172 Low Band Jammer, AAR-44 Missile Warning Receiver, C-130 Engine Infrared Suppression, and C-130 Electronic Warfare Data Bus, and ALQ-172 Electronic Countermeasures Jammer Upgrade.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Directional Infrared Countermeasures (DIRCM)																
CDR	x															
Start Formal Testing			x													
Production Decision												x				
Complete AC-130H QOT&E														x		
AC-130H Electronic Countermeasures MS III	x															
AAR-44 Missile Warning Receiver MS III									x							
AC-130U/MC-130H ALQ-172 LBJ Contract Award												x				
C-130 Engine Infrared Suppression																
Contract Award											x					
Critical Design Review													x			
Formal Testing															x	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project 3284	

A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. DIRCM			
Preliminary / Functional Design	1.436	2.713	0.846
Tests	0.377	1.886	0.375
ECPs	1.800	0.400	0.100
Program Management Office		1.980	0.690
2. EWAISF	2.800	1.763	1.459
3. ALQ-172 (AC-130U/MC-130H)		0.299	1.563
4. C-130 Engine Infrared Suppression			2.546
TOTAL:	6.413	9.041	7.579

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project 3284

B. Budget Acquisition History and Planning Information

Performing Organizations — Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
Northrop (DIRCM)	C/FP	Mar-95	TBD	33.670	33.670			2.713	0.846		37.229
Georgia Tech (EWAISF)	SS/CPIF	Sep-94	2.490	2.490	2.490						2.490
Amhurst (EWAISF)	SS/FFP	Oct-96		Cont.			2.800	1.763	1.459	Cont.	Cont.
Cincinnati Electronics (AAR-44)	SS/CPIF	Nov-94	7.328	7.328	7.328						7.328
TBD (ALQ-172 LBJ)	TBD	Aug-98	TBD	TBD				0.299	1.563	Cont.	Cont.
TBD (C-130 IR Suppression)	TBD	Dec-98	TBD	TBD					2.546	Cont.	Cont.
Various	Various	Various		Cont.	3.721		0.377	0.400	0.100	Cont.	Cont.
Support and Management Organizations											
Booz Allen Hamilton (DIRCM)	C/FP	Apr-93	TBD	14.407	7.937		1.800	1.980	0.690	2.000	14.407
SSAI (ALQ-172)	SS/CPFF	Jun-95	2.819	2.819	2.819						2.819
MTI (ALQ-172)	SS/FFP	Jul-95	0.482	0.482	4.820						4.820
ITC (ALQ-172)	SS/T&M	Sep-95	0.308	0.308	0.308						0.308
Test and Evaluation Organizations											
AFOTEC/Other (DIRCM)	PO	Dec-95	TBD	6.534	2.698		1.436	1.886	0.375	1.000	7.395
USAF Flight Test Facility (ALQ-172)	PO	Nov-95	3.817	3.817	4.134						4.134

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					47.209		3.177	5.175	6.514	Cont.	Cont.
Subtotal Support and Management					15.884		1.800	1.980	0.690	2.000	22.354
Subtotal Test and Evaluation					6.832		1.436	1.886	0.375	1.000	11.529
Total Project					69.925		6.413	9.041	7.579	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3326

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
3326, AC-130U	15.185	5.264	3.106	1.352	1.336	.734	.737	Cont.	Cont.

A. Mission Description and Budget Item Justification

The AC-130U aircraft will be more capable and survivable than the existing AC-130H aircraft. The aircraft subsystems include precision navigation, target acquisition and strike radar, fire control computers integrated on redundant MIL-STD-1553B data buses, electronic countermeasures, infrared countermeasures, aerial refueling, covert lighting, trainable weapons, all light level television, infrared sensor, and secure communications systems. These subsystems enable the gunship to strike targets with surgical accuracy, to loiter safely in the target area for extended time periods, and to perform these tasks in night or adverse weather conditions. Every effort has been made to adapt off-the-shelf equipment. To the maximum extent possible, the subsystems in the AC-130U are common with systems on other Air Force Special Operations Command aircraft. AC-130U software is developed and sustained using a Systems Integration Laboratory (SIL).

FY 1997 ACCOMPLISHMENTS:

- (8.616) Performed engineering analysis and identified corrections for service reports. (1QTR97-4QTR97)
- (0.341) Continued Systems Integration Laboratory development. (2QTR97)
- (2.517) Continued mission support and contractor advisory services. (1QTR97-4QTR97)
- (0.150) Continued effort on technical order verification and validation. (2QTR97)
- (0.850) Continued radar software development facility support. (3QTR97-4QTR97)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3326

- (0.525) Continued sensor flight test operations and support. (2QTR97)
- (2.186) Continued development of depot level support equipment. (4QTR97)

FY 1998 PLAN:

- (0.160) Continue effort on technical order verification/validation and printing. (1QTR98)
- (4.900) Develop I-level support equipment for the trainable gunmount system and the 25mm gun. (2QTR98)
- (0.101) Conduct annual software flight test operations and support. (1QTR98)
- (0.095) Continue reliability and maintainability technical studies and analysis. Examine alternative solutions for control and display problems. (1QTR98-4QTR98)
- (.008) Continue mission support. (1QTR98-4QTR98)

FY 1999 PLAN:

- (2.000) Develop prototypes and risk reduction efforts for control and display subsystem improvements. (1QTR99).
- (0.220) Continue effort on technical order verification/validation and printing. (2QTR99)
- (0.405) Continue annual software flight test operations and support. (2QTR99-3QTR99)
- (0.473) Continue reliability and maintainability technical studies and analysis. Continue control and display analysis. (2QTR99)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3326

- (.008) Continue mission support (system safety support). (1QTR99)

ACQUISITION STRATEGY: Modify C-130H airframe into a side-firing configuration on a sole-source fixed price incentive development contract. Conduct a combined Qualification Test and Evaluation/Qualification Operational Test and Evaluation(QOT&E) and a dedicated QOT&E. The AC-130U is logistically supported at organizational, intermediate and depot levels via interim contractor support until organic support is established. Initial operational capability March 1996, full operational capability in FY 2001.

B. Program Change Summary	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	15.995	6.009	1.164	Cont.
Appropriated Value	14.563	6.009		
Adjustments to Appropriated Value / President's Budget	0.622	(0.745)	1.942	
Current Budget Submit	15.185	5.264	3.106	Cont.

Change Summary Explanation:

Funding: FY 1997 increase was for engineering analysis and identification of corrections for service reports. FY 1998 decrease is project cost share for Small Business Innovative Research program, Congressional inflation adjustments and supplemental bills. FY1999 funding change due to prototyping and risk reduction efforts instituted to correct control and display system deficiencies and Congressional inflation adjustments.

Schedule: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project 3326

Technical: None.

C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, AC-130U*	42.580	58.083	28.600	26.973	21.896	3.317	1.784	Cont.	Cont.

* Includes funds for interim contractor support for both hardware and software, post-production support, tech order maintenance, system integration lab support, and support equipment procurement.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Initial Operational Capability		x														
Final Aircraft Delivery						x										

Full Operational Capability: Mar 2001

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project 3326		
A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. Other Government Test (TOV&V)	0.150	0.160	0.220
2. SIL S/W	0.341		
3. Technical Studies / Analyses		0.095	0.473
4. Development of Service Reports	8.616		
5. Sensor test and support	0.525		
6. Mission support and contractor advisory services	2.517	0.008	0.008
7. Intermediate - level support equipment		4.900	
8. Flight test and support		0.101	0.405
9. Radar software development facility support	0.850		
10. Depot Level Support Equipment	2.186		
11. Controls and Display Subsystems			2.000
TOTAL:	15.185	5.264	3.106

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project 3326

B. Budget Acquisition History and Planning Information

Performing Organizations — Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
Boeing (Rockwell NAA)	C/CPIF	Jul-87	194.589	194.589	194.589						194.589
Boeing Fit Test	SS/FPIF	Various			16.941						16.941
Boeing ECPs	SS/CPFF	Various			16.533		11.993	4.995	0.473	4.072	38.066
Loral (IBM)	SS/FPIF	Various			4.777						4.777
General Electric	SS/FFP	Various		2.490	1.436						1.436
TBD	TBD	Various		Cont.	0.135						0.135
LASC	SS/FFP	Oct-94		7.328	0.955						0.955
Boeing (Rockwell) (T-1 Training)	SS/FFP	Nov-89		TBD	0.616						0.616
Miscellaneous	Various	Various		Cont.	3.798				2.000		5.798
Support and Management Organizations											
Air Force, AFMC ASC/LU	Various			32.240	22.842		2.517	0.008	0.008	8.541	33.916
Test and Evaluation Organizations											
AFFTC	PO	Various		35.251	33.968		0.525	0.101	0.405		34.999
ITT	SS/FFP	Jan-93		0.835	0.835						0.835
Other Government Test (TOVV)	PO	Oct/ea.FY		1.615	1.046		0.150	0.160	0.220		1.576
RADC Testing	PO	Various		0.748	0.748						0.748
WRDC Testing	PO	Various		0.224	0.224						0.224

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)											DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7				R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project 3326							
Government Furnished Property											
Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Property											
Lockheed Airframe	SS/FFP				13.398						13.398
Allison Engines	SS/FFP				2.196						2.196
Various Avionics	MIPR				2.868						2.868
Various Other	MIPR				0.413						0.413
Support and Management Property											
None											
Test and Evaluation Property											
Flight Test Support Equipment					1.672						1.672
Other Government Test (TOVV) Milstrip					0.066						0.066
Subtotal Product Development					258.655		11.993	4.995	2.473	4.072	282.188
Subtotal Support and Management					22.842		2.517	0.008	0.008	8.541	33.916
Subtotal Test and Evaluation					38.559		0.675	0.261	0.625	0.000	40.120
Total Project					320.056		15.185	5.264	3.106	12.613	356.224

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S350, Special Operations Forces Planning and Rehearsal System (SOFPARS)	5.739	5.182	3.633	3.707	3.433	3.184	2.934	Cont.	Cont.

A. Mission Description and Budget Item Justification

SOFPARS is a joint evolutionary acquisition program for the United States Special Operations Command. This program is developing an automated mission planning capability to support Special Operations Forces (SOF). SOFPARS will consist of a collection of automated mission planning hardware and software tools. Those tools include SOF enhancements to the Air Force Mission Support System which includes the Unix based Mission Planning System (MPS) / Portable MPS and the personal computer based Portable Flight Planning Software. SOFPARS will be provided to Air Force Special Operations Command units and the aviation component of the United States Army Special Operations Command - the 160th Special Operations Aviation Regiment (Airborne). SOFPARS will automate mission planning thus allowing SOF commanders and crews to plan and respond quickly to missions of national importance as well as day-to-day taskings. To accomplish this task, SOFPARS will provide a multi-command level planning capability at major SOF headquarters, theater headquarters, SOF Forward Operating Bases and Forward Operating Locations. SOFPARS will also provide portable subsystems and mission execution support products for use by crews deployed to operational locations. Present aviation mission planning capabilities cannot adequately support the stated mission need. Existing systems are insufficient for planning SOF operations. Specifically, existing systems lack sufficient processing speed and flexibility, storage capacity, growth potential, graphics (both on-screen and hard copy output), image processing and storage, and the ability to process combat planning folder data in a timely manner. They also lack near-real-time access to national/tactical level data bases and the capability to update data in a timely fashion, along with the means to effectively process the data during mission planning. The mobility, complexity, quantity, and lethality of enemy threats dictate automated data input and systems that can be interfaced via electronic communication systems throughout the SOF community. The SOFPARS effort meets the joint requirement to ensure interoperability and standardization of the mission planning process between SOF and the Services. Aircraft affected include MH-60G/K/L, MH-47E/D, MH-53J, MC-130E/H, AC-130H/U, AH/MH-6, MC-130P, EC-130E, and CV-22.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

FY 1997 ACCOMPLISHMENTS:

- (1.400) Continued Air Force Mission Support System (AFMSS) C2.1 software development. (1QTR97-4QTR97)
- (1.234) Continued developing AFMSS interfaces and the Personal Computer (PC) Portable Flight Planning Software (PFPS) interfaces. (1QTR97-4QTR97)
- (3.105) Completed PC PFPS 2.0 enhancements and started PC PFPS 3.0 enhancements to include aircraft/weapons/electronics interface software module development for all SOF aircraft. (1QTR97-2QTR98)

FY 1998 PLAN:

- (0.617) Begin AFMSS C2.2 development (SOF unique features). (1QTR98-4QTR98)
- (2.048) Complete PC based 3.0 enhancements and begin 3.1 enhancements to include development and integration with AFMSS C2.2 software architecture. (1QTR98-4QTR98)
- (2.517) Continue aircraft weapons/electronics interface software module development. (1QTR98-4QTR98)

FY 1999 PLAN:

- (0.907) Continue AFMSS C2.2 development (SOF unique features). (1QTR99-4QTR99)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

- (1.476) Continues Personal Computer (PC) based development and integration with Air Force Mission Support System (AFMSS) C2.2 software architecture. (1QTR99-4QTR99)

- (1.250) Continue aircraft weapons/electronics interface software module development. (1QTR99-4QTR99)

ACQUISITION STRATEGY:

Develop mission planning software to support SOF operations leveraging ongoing Personal Computer (PC) based efforts under the AFMSS program. Integration of PC based Portable Flight Planning Software and Unix based Mission Planning System (MPS) / Portable MPS to support SOF requirements maximizes use of commercial off-the-shelf software technology and components to reduce overall costs and schedule. Contract strategy combines various contracts and types to include competitively awarded cost plus and sole source cost no fee (educational institution) contracts. Maximize use of existing hardware technology procured via firm fixed price contract to take advantage of software portability and open system architecture. Focuses on aircraft / weapons / electronics interface required to initialize and upload aircraft avionics through the use of electronic data transfer devices. Uses software support facility to maintain and update software.

Previous President's Budget	7.339	5.640	4.072	Cont.
Appropriated Value	7.439	5.640		
Adjustments to Appropriated Value / President's Budget	(1.700)	(0.458)	(0.439)	
Current Budget Submit	5.739	5.182	3.633	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S350

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for implementation of Congressional Defense reductions, and resourcing higher priority MFP-11 programs. FY 1998 decrease for Congressional inflation adjustments and supplemental bills. FY 1999 decrease is to fund higher priority MFP-11 requirements and revised economic assumptions forecast.

Schedule: None.

Technical: None.

C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, SOFPARS	1.876	0.560	1.027	2.448	2.597	2.001	0.957	Cont.	Cont.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Block C2.0 FCA/PCA			x													
Block C2.0+(now C2.1) FCA/PCA							x									
AFMSS 2.2 Development Contract Award									x							
Block C2.2 FCA/PCA												x				
PFPS Release 2.0					x											

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S350		
A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. Air Force Mission Support System Mission Planning Core	1.400	0.599	0.887
2. Aircraft, Weapons, Electronics Interfaces SOF Common Module/Interfaces	4.339	4.583	2.746
TOTAL:	5.739	5.182	3.633

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S350

B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations Various	Various	Various		Cont.	27.477		4.339	3.927	2.897	Cont.	Cont.
Support and Management Organizations Various	Various	Various		Cont.	8.380		1.400	0.752	0.486	Cont.	Cont.
Test and Evaluation Organizations 46th TS	TBD	TBD		Cont.				0.503	0.250	Cont.	Cont.

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					27.477		4.339	3.927	2.897	Cont.	Cont.
Subtotal Support and Management					8.380		1.400	0.752	0.486	Cont.	Cont.
Subtotal Test and Evaluation					0.000		0.000	0.503	0.250	Cont.	Cont.
Total Project					35.857		5.739	5.182	3.633	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S375

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S375, Weapons and Support Systems Advanced Development	3.790	3.790	1.241	3.999	2.453	0.450	0.268	Cont.	Cont.

A. Mission Description and Budget Item Justification

Special Operations Forces (SOF) often deploy as small, independent, quick reaction, foot-mobile teams independent of primary logistics support. Existing weapons and combat equipment are frequently unsuited to these conditions. This project provides for development and testing of specialized, lightweight individual weapons, fire control/surveillance devices, and combat equipment to meet the unique requirements of SOF. This is a continuing program. Sub-projects include:

- Heavy Sniper Rifle (HSR). HSR provides SOF with a standoff engagement capability against various materiel targets such as parked aircraft, C3I sites, radar equipment, ammunition storage facilities, fuel storage facilities, and light armored vehicles. Allows SOF operators to engage materiel targets at long range before enemy security forces can react.

- Improved Night/Day Observation/Fire Control Device (INOD). Allows the SOF sniper to detect, acquire, and engage targets out to his weapon's maximum effective range under day and night conditions. INOD is intended for use on the M24 and 300 Win-Mag medium sniper rifles (small device) and the .50 caliber heavy sniper rifle (large device).

- M4A1 Carbine SOF Accessory Kit. SOF variant of standard Army M4 Carbine. Allows mounting of optional accessories (up to 30 different functions/capabilities) such as day scopes, night scopes, active aiming laser module, visible lights, grenade launchers, suppressors, hand grips, and close quarters battle sights.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S375

- SOF Personal Equipment Advanced Requirements (SPEAR), formerly called Battle Dress System. Integrates the development and procurement of items the SOF operator wears, carries, and consumes. It treats the individual SOF operator as a system, and acquires SOF-unique, state of the art equipment in nine functional areas (clothing, body armor/load bearing equipment, ballistic protection, optical protection, nuclear biological chemical protection, signature reduction, physiological management, target acquisition, command control communications computers and information).

FY 1997 ACCOMPLISHMENTS:

- (0.730) SPEAR. Evaluated body armor / load carriage system components. Initiated modular integrated communications helmet. (1QTR97-4QTR97)
- (0.044) M4A1 Carbine SOF Accessory Kit. Evaluated integration of night scopes with active laser aiming module and/or reflex sight. (3QTR97)
- (2.726) Improved Night/Day Observation/Fire Control Device (INOD). Completed front end analysis of feasible technologies. Awarded contract for development and test of early prototypes. (1QTR97-3QTR97)
- (0.290) Heavy Sniper Rifle. Performed capabilities assessment of various non-developmental items/commercial off the shelf weapons and ammunition. Released solicitation for shoot-off and downselect. (2QTR97-4QTR97)

FY 1998 PLAN:

- (2.168) INOD. Complete evaluation of early prototypes. Initiate fabrication and evaluation of pre-production prototypes. (3QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S375

- (1.622) Special Operations Forces (SOF) Personal Equipment Advanced Requirements (SPEAR). Complete development and selection of Body Armor/Load Carriage System (BALCS). Initiate development of Modular Integrated Communications Helmet (MICH). (1QTR98-4QTR98)

FY 1999 PLAN:

- (0.670K) Improved Night/Day Observation/Fire Control Device (INOD). Complete evaluation of pre-production prototypes and go to MS III. (3QTR99)

- (0.571K) SPEAR. Complete MICH development and go to MS III. (1QTR99-3QTR99)

ACQUISITION STRATEGY:

- SPEAR. Each of the nine component modules of SPEAR follows its own acquisition strategy based upon technology maturity, suitability of existing government systems, and importance to the user. The BALCS acquisition strategy calls for evaluation of Army and USMC body armor/load carriage systems, as well as a modified non-developmental item/commercial system, for operational effectiveness and suitability vice the SPEAR BALCS requirement. The MICH acquisition strategy calls for a two year engineering and manufacturing development phase to leverage technology developments achieved by USSOCOM as part of the Special Operations Special Technologies program.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S375

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	3.801	4.109	2.548	Cont.
Appropriated Value	3.886	4.109		
Adjustments to Appropriated Value / President's Budget	(0.096)	(0.319)	(1.307)	
Current Budget Submit	3.790	3.790	1.241	Cont.

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for the Small Business Innovative Research (SBIR) program, implementing Congressional Defense reductions, and internal realignments to fund higher priority MFP-11 requirements. FY 1998 decrease is project cost share for SBIR, Congressional inflation adjustments and supplemental bills. FY 1999 decrease is for Congressional inflation adjustments and program restructure and decrease to support higher command priorities.

Schedule: None.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S375

C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, SOF Small Arms & Spt. Equip.	10.525	12.620	15.421	14.118	11.771	8.845	7.458	Cont.	Cont.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SPEAR																
Initiate Studies(BA/LBE)			x													
MS I/II BA/LBE					x											
MS III BA/LBE										x						
MS I/II MICH												x				
MS III MICH															x	
M4A1 Carbine SOF Accessories Kit																
MS III on Reflex Sight									x							
Night Scope MS III										x						
Night Scope Contract Award												x				
INOD																
MS I/II					x											
MS III													x			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S375

D. Schedule Profile (Cont.)	FY96 1	FY96 2	FY96 3	FY96 4	FY97 1	FY97 2	FY97 3	FY97 4	FY98 1	FY98 2	FY98 3	FY98 4	FY99 1	FY99 2	FY99 3	FY99 4
HSR																
MS I/II										x						
MS III												x				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S375	

A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. M4A1 Carbine SOF Accessories Kits	0.044		
2. SOF Personal Equipment Advanced Requirements	0.730	1.618	0.571
3. Improved Night/Day Observation/Fire Control Device	2.726	2.172	0.670
4. Heavy Sniper Rifle	0.290		
TOTAL:	3.790	3.790	1.241

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S375

B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
Naval Surface Warfare Center-Crane	ALLOT	Sep-96,97	NA	NA	5.133		0.044			1.406	6.583
Soldier Systems Command, USA	C/CPFF	Mar-96	NA	NA	0.147		0.730	1.622	0.571	Cont.	Cont.
PM-Night Vision Electro-Optics	MIPR	Various	NA	NA			2.726	2.168	0.670		5.564
PM-Small Arms, USA	MIPR	Various	NA	NA			0.290				0.290
Support and Management Organizations											
Test and Evaluation Organizations											

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					5.280		3.790	3.790	1.241	Cont.	Cont.
Subtotal Support and Management					0.000		0.000	0.000	0.000		
Subtotal Test and Evaluation					0.000		0.000	0.000	0.000		
Total Project					5.280		3.790	3.790	1.241	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S625

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S625, SOF Training Systems	10.030	7.844	23.843	11.078	12.539	28.389	1.876	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project funds analysis, development, test, and integration of SOF aviation-related training and mission rehearsal systems and upgrades. Sub-projects include: AC-130U Gunship Aircrew / Maintenance Training System (GA/MTS). The GA/MTS develops an integrated, ground-based combination training and mission rehearsal system to support initial, mission, special qualification, continuation, upgrade and maintenance training for the AC-130U Gunship aircrews. The need for GA/MTS is driven by the lack of any current training or mission rehearsal capability for the aircrew and maintenance personnel. The GA/MTS will consist of two primary components. The first component, a Battle Management Center (BMC) testbed, will refine requirements for system fidelity and provide an initial operational capability training capability for the Navigator Fire Control Officer (NAV/FCO) and sensor operator crew stations. The second component will complete the BMC with electronic warfare crew stations and build a flight deck with full fidelity, six (6) degree of freedom motion simulation for the pilots and flight engineers. Additionally, the Instructor Operator Station will provide role-playing capabilities for the sensor operators. GA/MTS will be networked with other SOF simulators

.

FY 1997 ACCOMPLISHMENTS:

- (9.040) AC-130U Gunship Aircrew / Maintenance Training System (GA/MTS). Continue development of the BMC testbed. (1QTR97-4QTR97)
- (0.990) Program Management Office support. (1QTR97-4QTR97)

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FY 1998 PLAN:

- (1.323) AC-130U Gunship Aircrew / Maintenance Training System (GA/MTS). Complete development of the BMC testbed. (1QTR98-3QTR98)
- (5.591) GA/MTS. Begin development of the flight deck and remaining crew stations. (1QTR98)
- (0.930) Program Management Office support. (1QTR98-4QTR98)

FY 1999 PLAN:

- (22.518) GA/MTS. Continue development of flight deck and remaining crew stations. (1QTR99-4QTR99)
- (1.325) Program Management Office support. (1QTR99-4QTR99)

ACQUISITION STRATEGY: GA/MTS program is currently in Phase I. The two-phase acquisition strategy will first build a BMC testbed using production AC-130U avionics, commercial image generation, and computers to refine user requirements prior to the second phase to procure a complete BMC and Flight Deck Aircrew Training Device (ATD). A Milestone II decision occurred 4QFY97.

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B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	9.759	9.564	24.777	Cont.
Appropriated Value	9.759	9.564		
Adjustments to Appropriated Value / President's Budget	0.271	(1.720)	(0.934)	
Current Budget Submit	10.030	7.844	23.843	Cont.

Change Summary Explanation:

Funding: FY 1997 increase buys data base generation capability for SE 2000 image generator. FY 1998 decrease is project cost share for Small Business Innovative Research, Congressional inflation adjustments and supplemental bills. FY 1999 decrease is for Congressional inflation adjustments and program restructure and decrease to support higher command priorities.

Schedule: A 3-6 month schedule slip in delivery of flight deck acquisition of long lead parts will defer partially to FY 1999. Potential for skills retention loss as a result of funding reduction.

Technical: None.

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C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, SOF Training Systems	4.425	3.302	6.053	.069	2.362	.112	28.697		45.020

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Begin prototyping of Battle Management Center		x														
GA/MTS Milestone II/III								x								
GA/MTS BMC Delivery									x							
Begin Flight Deck Feasibility Analysis									x							

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S700

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S700, Communications Advanced Development	1.905	1.226	2.734	2.523	2.156	2.002	2.137	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project provides for development and testing of selected items of specialized equipment to meet the unique requirements of Special Operations Forces (SOF). Specialized equipment will permit small, highly trained forces to conduct required operations across the entire spectrum of conflict. These operations are generally conducted in harsh environments, for unspecified periods, and in locations requiring small unit autonomy. Special Operations Forces must infiltrate by land, sea, and air to conduct unconventional warfare, direct actions, or deep reconnaissance operations in denied areas against insurgent units, terrorists, or highly sophisticated threat forces. The requirement to operate in denied areas controlled by a sophisticated threat mandates that SOF systems remain technologically superior to threat forces to ensure mission success.

USSOCOM has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities into the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture will employ the latest standards and technology by transitioning from separate systems to full integration with the infosphere. The infosphere is a multitude of existing and projected national assets that operate with any force combination in multiple environments. The C4I programs funded in this project are grouped by the level of organizational element they support: Operational Element (Team), Above Operational Element (Deployed), and Above Operational Element (Garrison). Sub-projects include:

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OPERATIONAL ELEMENT (TEAM)

- Aircraft Wireless Intercommunication System. A wireless intercom system that allows air and ground crew members to communicate and move about, both within as well as outside (up to 500 feet), the host (fixed and rotary wing) aircraft while on the ground orinflight, without the need for physical attachment to the aircraft.

- Multi-Band Inter/Intra Team Radio (MBITR). MBITR will provide lightweight, handheld, inter/intra team communications for Joint SOF. SOF teams conduct air, ground, and maritime missions across the entire operational spectrum. These missions currently require SOF teams carry multiple handheld radios operating in several different frequency bands to ensure positive communications. The MBITR will provide each of these frequency bands in a single handheld radio with embedded communications security (COMSEC).

- Special Operations Communications Assemblage (SOCA) Improvement. Program upgrades 80 SOCA units delivered to SOF units in FY93 and prior. Proposed modifications include repackaging/downsizing (no more than 70lbs. less generator), enhanced graphics, UHF SATCOM DAMA capability, advanced data controllers, and document upgrades to enhance interoperability with conventional and other SOF units. The acquisition strategy is to develop and test the proposed improvements (Phase II) prior to system upgrade (Phase III).

- Special Mission Radio System (SMRS). SMRS is a joint radio system that provides SOF a lightweight, Low Probability of Intercept/Low Probability of Detection (LPI/LPD) high frequency radio with co-resident military standard Automatic Link Establishment (ALE), non-standard ALE, and internal communication security capabilities. Deployed in hostile and clandestine environments, the system consists of manpack radio and base station, and provides hardware improvements and software documentation.

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ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- Special Mission Radio System (SMRS). SMRS is also planned for use at this level.

- Joint Base Station (JBS). JBS is an evolutionary acquisition program which encompasses five service-specific requirements: TSC-135 (core capability, commercial vehicle system), TSC-135 (V)1 (military vehicle system with transit case capabilities), TSC-135 (V)2 (transit case system), TSC-135 (V)3 (fixed site system), and TSC-135 (V)4 (modular communications system). JBS will provide SOF with continuous, reliable, communications among SOF component commands while allowing for differences in missions. JBS will contain line-of-sight (LOS) and beyond-LOS radios, and associated message handling and switching equipment, providing command and control voice, imagery, data, and facsimile.

- SOF Tactical Assured Connectivity Systems (SOFTACS). SOFTACS is an integrated suite of communications systems designed to support the high-capacity, digital, secure, interoperable, transmission and switching requirements of USSOCOM C4I architecture.

ABOVE OPERATIONAL ELEMENT (GARRISON)

- SMRS is also planned for use at this level.

- Command, Control, Communications, Computers and Intelligence Automation System (C4IAS). Beginning in FY 1998, C4IAS consolidates and migrates SOF C4I automation systems to a Joint C4I Automation System that will provide a seamless, interoperable and easy to use automation environment for the headquarters USSOCOM, component commands, and the theater SOC users to support SOF worldwide. It will provide accurate and timely information, analysis and planning tools. The Joint SOF C4I Automation System will fulfill a wide range of requirements ranging from command and control, office automation to decision-making assistance, mission analysis, as well as planning and execution support. The implementation of state-of-art hardware, software and communications technology will provide the SOF user community with the best, most efficient means to effectively satisfy SOF information and planning needs. Migration objectives include

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compliance with Defense Information Infrastructure (DII) Common Operating Environment (COE), collaterization, upgraded network communications backplane, tactical extensions and national systems. Legacy systems include USSOCOM LAN/WAN, NAVSPECWARCOM LAN, AFSOC LAN, Special Tactics Network (STN), Army Special Operations Command Network (ASOCNET), SOF Logistics and Acquisition Management System (SLAMS), Command Planning Database (CPD), Special Mission Unit (SMU) network, and Defense Simulation Internet (DSI). The acquisition strategy is to use existing government contracts to obtain required software and hardware upgrades through a structured evolutionary technology insertion process.

FY 1997 ACCOMPLISHMENTS:

- (0.558) Multi-Band Inter/Intra Team Radio. Conducted Milestone I/II review. Conducted source selection and awarded EMD contract. (1QTR97-4QTR97)

- (0.491) Special Mission Radio System. Conducted developmental testing on the AN/PRC-137C enhancements (military standard automatic link equipment, ruggedized digital message entry device, whip antenna mount) and battery box testing. Conducted feasibility testing of 137C on small maritime craft and prepared 137F test documentation. (3QTR97-4QTR97)

- (0.781) Joint Base Station. Conducted developmental, operational, and follow-on testing and discrepancy resolution for Variant 1. Initiated integration effort with SMRS. (1QTR97-4QTR97)

- (0.075) SOF Tactical Assured Connectivity Systems. Conducted market research and product development for block two technology insertion. (4QTR97)

FY 1998 PLAN:

- (0.030) Aircraft Wireless Intercommunication System. Complete operational testing. (1QTR98)

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- (0.300) Multi-Band Inter/Intra Team Radio. Conduct developmental and operational testing. (3QTR98-4QTR98)
- (0.130) Special Mission Radio System. Complete developmental test and perform operational test and evaluation. (2QTR98-3QTR98)
- (0.435) Joint Base Station. Continue follow-on test and evaluation of Variant 1. (1QTR98-2QTR98)
- (0.122) SOF Tactical Assured Connectivity Systems. Conduct developmental/operational test and evaluation. (2QTR98-4QTR98)
- (0.209) Command, Control, Communications, Computers and Intelligence Automation System. Design, integrate, and test specific adaptive network gateway technologies to permit seamless integration of existing networks. Begin development of database interoperability tools among existing networks using Common Object Request Broker Architecture and Hypertext Markup Language/Virtual Reality Markup Language technologies. (2QTR98-4QTR98)

FY 1999 PLAN:

- (0.330) Special Operations Communications Assemblage Improvement. Conduct market research and perform integration and test of NDI upgrades. (1QTR99-4QTR99)
- (0.719) Special Mission Radio System. Conduct integration and test and evaluation of AN/PRC-137F into small maritime crafts. (1QTR99-3QTR99)
-
- (0.411) Joint Base Station. Perform test and evaluation of new technologies in support of Evolutionary Technological Insertions (ETIs) for all variants. (1QTR99-4QTR99)

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- (1.064) SOF Tactical Assured Connectivity Systems. Complete developmental/operational test and evaluation. Conduct testbed operations for block 2 ETIs. Conduct market research for block 3 ETIs. (1QTR99-3QTR99)

- (0.210) Command, Control, Communications, Computers and Intelligence Automation System. Complete design, integration and testing of database development efforts. (1QTR99)

ACQUISITION STRATEGY:

- SOF Tactical Assured Connectivity Systems (SOFTACS). The SOFTACS program will be managed under an evolutionary acquisition strategy. Evolutionary technology insertions (ETI) are integrated through block upgrades. ETIs will be supported by market research and test and evaluation which will be used to evaluate the benefits and impacts on the SOFTACS system.

B. Program Change Summary	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	2.604	2.130	2.890	Cont.
Appropriated Value	2.648	2.130		
Adjustments to Appropriated Value / President's Budget	(0.743)	(0.904)	(0.156)	
Current Budget Submit	1.905	1.226	2.734	Cont.

Change Summary Explanation:

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Funding: FY 1997 and FY1998 decreases are for project cost share of the Small Business Innovative Research program, implementation of Congressional Defense reductions and resourcing higher priority MFP-11 projects. FY 1999 decrease is for inflation adjustments.

Technical: None.

Schedule: None.

C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, Communications & Electronics	32.770	58.649	68.064	69.513	65.259	54.677	27.239	Cont.	Cont.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Aircraft Wireless Intercommunication System																
Operational Testing									x							
SOCA Improvement																
MS I/II													x			

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	FY96				FY97				FY98				FY99			
D. Schedule Profile	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Special Mission Radio System																
DT										x						
OT											x					
MS III												x				
Joint Base Station																
ETIs All Variants	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
CDR Variant 1		x														
DT/OT Variant 1					x					x						
MS III Variant 1										x						
CDR Variant 2		x														
DT/OT Variant 2					x											
MS III Variant 2								x								
CDR Variant 3													x			
DT/OT Variant 3															x	
MS III Variant 3																x
CDR Variant 4													x			
DT/OT Variant 4															x	
MS III Variant 4																x
SOF Tactical Assured Connectivity System																
MS II		x														

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D. Schedule Profile	FY96 1	FY96 2	FY96 3	FY96 4	FY97 1	FY97 2	FY97 3	FY97 4	FY98 1	FY98 2	FY98 3	FY98 4	FY99 1	FY99 2	FY99 3	FY99 4
DT/OT										x		x	x			
MS III														x		
C4I Automation																
ETI Block Upgrade (Design Gateway Technology)										x						
DT/OT												x				
ETI Block Upgrade (Design Data Base)												x				
DT/OT													x			
Multi-Band Inter-team Radio																
MS I/II						x										
Contract Award (EMD)						x										
DT/OT Testing											x	x				
MS III												x				

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APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S700		
A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. Aircraft Wireless Intercommunication System			
Government Engineering Support		0.030	
2. Multi-Band Iner/Intra Team Radio			
Hardware/Software Development	0.311		
Testing and Evaluation	0.050	0.300	
Contract Engineering	0.079		
Government Engineering	0.097		
Program Support	0.021		
3. SOCA Improvement			
Testing and Evaluation			0.230
Government Engineering			0.100
4. Special Mission Radio System			
Hardware/Software Development			0.428
Testing and Evaluation	0.324	0.120	0.201
Contract Engineering	0.085		0.080
Government Engineering	0.075		
Program Support	0.007	0.010	0.010
5. Joint Base Station			
Testing and Evaluation	0.582	0.280	0.271
Government Engineering	0.159	0.155	0.140
Contract Engineering	0.040		
6. SOF Tactical Assured Connectivity			
Hardware/Software Development			0.580
Testing and Evaluation		0.122	0.224
Government Engineering	0.075		0.150
Program Support			0.110
7. C4I Automation System			
Hardware/Software Development		0.103	0.105
Contract Engineering		0.106	0.105
TOTAL:	1.905	1.226	2.734

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B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
Racal, Rockville, MD	Cost Sharing	Mar-97	0.523	0.523	0.212		0.311				0.523
USA PM SATCOM/CECOM, Ft. Mon, NJ	ALLOT	Various	Cont.	Cont.	1.147		0.025	0.122	1.244		Cont.
SSDS, Englewood, CO	CPFF	Jun-93	5.472	5.472	5.472						5.472
Mitre, McLean, VA	CPFF	Oct-93	Cont.	Cont.	6.030		0.123				Cont.
NAWC-AD, St. Inigoes, MD	MIPR	Various	Cont.	Cont.	8.442		0.990	0.735	0.411	Cont.	Cont.
NSMA, Arlington, VA	ALLOT	Various	Cont.	Cont.	1.000		0.215	0.120	0.709	Cont.	Cont.
DISA, Reston, VA	ALLOT	Various	Cont.	Cont.	0.500						0.500
Support and Management Organizations											
Booz Allen & Hamilton, Tampa, FL	CPFF	Jan-93	Cont.	Cont.	0.182		0.130	0.106	0.150	Cont.	Cont.
Miscellaneous	Various	Various	Cont.	Cont.	0.810		0.075	0.143	0.220	Cont.	Cont.
Test and Evaluation Organizations											
Jt Interop. Test Cmd, Ft. Huachuca, NM	MIPR	Mar-97	0.006	0.006			0.006				0.006
Defense Eval. Spt Activity, Kirkland AFB, NM	ALLOT	Mar-97	0.030	0.030			0.030				0.030
TBD	TBD	TBD	TBD	0.399							0.000
Miscellaneous	NA	NA	NA	NA	0.047					Cont.	Cont.

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Government Furnished Property	

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					22.803		1.664	0.977	2.364	Cont.	Cont.
Subtotal Support and Management					0.992		0.205	0.249	0.370	Cont.	Cont.
Subtotal Test and Evaluation					0.047		0.036	0.000	0.000		Cont.
Total Project					23.842		1.905	1.226	2.734	Cont.	Cont.

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S800

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S800, Special Operations Munitions Advanced Development	9.846	3.414	4.499	6.274	14.798	13.699	16.630	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project provides for the acquisition of selected, specialized munitions and equipment to meet unique Special Operations Forces (SOF) requirements. This is a continuing program. Sub-projects include:

- Ammunition Development. This subproject addresses various improved capability ammunitions, including Air Force Special Operations Command needs for more effective 105mm ammunition. A 105mm high fragmentation round is required for defeat of light material and personnel targets in order to conduct close air support in increasingly hostile environments. A 105mm guided projectile is required to improve first shot kill capabilities for hardened mobile and stationary targets while minimizing collateral damage. A 105mm guided projectile, through increased standoff range allowed by greater accuracy, will reduce Gunship exposure to anti-aircraft fire, thereby increasing survivability.

- Improved Limpet Mine (ILM). The ILM will replace the existing Limpet Assembly Modular. The ILM is required for SEAL Delivery Vehicle attacks against ships, submarines, nested patrol craft, submerged harbor facilities, and various other maritime targets. The ILM will provide greater explosive weight to be delivered to the target, decrease time-on-target by improving handling procedures, and result in an enhanced probability of mission success.

- Penetration Augmented Munition. Presently SOF has a limited capability to significantly damage concrete structures or pylons assigned as targets. This program develops a man portable/emplaced munition that defeats large reinforced concrete structures, replaces more than 200

pounds of C4 explosive, reduces time-on-target, and represents new capability for Special Operations Forces (SOF) by being the first hand emplaced munition to use tandem Explosively Formed Penetrator (EFP) warheads and in-line electronic fuzing.

- Remote Activated Munitions System (RAMS). Provides a capability to remotely control detonation of demolition charges or the remote operation of other items of equipment such as beacons, laser markers, radios, and weapons.

- SOF Demolition Kit. The kit consists of inert hardware sets for Explosively Formed Penetrators (EFP), conical shaped charges and linear shaped charges, along with tools, equipment, and attachment devices for constructing and emplacing a variety of demolition charges. The kit allows the SOF operator to tailor the demolition charges to the target providing greater lethality and mission flexibility.

FY 1997 ACCOMPLISHMENTS:

- (0.290) Ammunition Development. Completed safety and ballistic testing for the high fragmentation round. (1QTR97-4QTR97)

- (4.075) Penetration Augmented Munition. Continued Engineering and Manufacturing Development (EMD) and conducted successful tactical end-to-end testing. (1QTR97-4QTR97)

- (3.507) RAMS. Completed technical data package for the transmitter, auxiliary power supply and Type A receiver. Conducted Milestone III review for transmitter and Type A receiver. Initiate design of Type B receiver. (1QTR97-4QTR97)

- (1.974) SOF Demolition Kit. Completed EMD and testing for the small and medium warheads as well as the other kit components. (1QTR97-4QTR97)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160404BB Special Operations Tactical Systems Development / Project S800

FY 1998 PLAN:

- (0.899) Special Operations Forces (SOF) Demolition Kit. Initiate design, fabrication and testing of large warhead and preplanned product improvement warheads. (1QTR98-4QTR98)

- (1.751) Remote Activated Munitions System (RAMS). Complete Engineering and Manufacturing Development (EMD) and conduct Milestone III review for Type B receiver. Initiate design of Type C receiver. (1QTR98-4QTR98)

- (0.764) Improved Limpet Mine (ILM). Initiate program and engineering efforts for the design and test. (1QTR98-4QTR98)

FY 1999 PLAN:

- (0.905) SOF Demolition Kit. Continue design, fabrication and testing of preplanned product improvement warheads. Complete EMD and testing; conduct Milestone III review for large warhead. (1QTR99-4QTR99)

- (1.001) RAMS. Complete EMD and testing and conduct Milestone III review for Type C receiver. (1QTR99-4QTR99)

- (2.593) ILM. Continue design and test of ILM. Conduct Milestone I/II review to enter EMD. (1QTR99-4QTR99)

ACQUISITION STRATEGY:

- RAMS. Developmental program managed by the Army Project Manager for Mines, Countermine and Demolitions. Design being developed by government engineering at the Army Research Laboratory. Initial production to be conducted at the Hughes Technical Services Center, Indianapolis, IN.

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- Improved Limpet Mine. Program managed by Naval Sea Systems Command, PMS 325. Designs will be developed by Naval Surface Warfare Centers.

B. Program Change Summary	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	12.208	3.700	4.698	Cont.
Appropriated Value	12.816	3.700		
Adjustments to Appropriated Value / President's Budget	(2.970)	(0.286)	(0.199)	
Current Budget Submit	9.846	3.414	4.499	Cont.

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for the Small Business Innovative Research (SBIR) program, implementation of Congressional reductions, and reprogramming to fund higher priority MFP-11 requirements.
FY 1998 decrease is project cost share for SBIR, Congressional inflation adjustments and supplemental bills.
FY 1999 decrease is for Congressional inflation adjustments and program restructure and decrease to support higher command priorities.

Schedule: None.

Technical: None.

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C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, Ordnance Acquisition	20.063	25.181	15.707	7.893	16.289	10.358	16.270	Cont.	Cont.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SOF Demolition Kit																
MS I/II		x														
MS III (Small and Medium Warheads)								x								
MS III (Large Warhead)																x
Penetration Augmented Munition																
MS III								x								
Remote Activated Munitions System																
MS III (Transmitter and Type A Receiver)								x								
MS III (Type B Receiver)												x				
MS III (Type C Receiver)																x
Improved Limpet Mine																
MS I/II															x	

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S800	

A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. AC-130U Gunship Ammo Development	0.290		
2. Demolition Kit	1.974	0.899	0.905
3. Penetration Augmented Munition	4.075		
4. Remote Activated Munitions Systems	3.507	1.751	1.001
5. Improved Limpet Mine		0.764	2.593
TOTAL:	9.846	3.414	4.499

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160404BB Special Operations Tactical Systems Development / Project S800

B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
Air Force Materiel Command, LIW-A	ALLOT	Various	NA	NA	7.489		0.290			Cont.	Cont.
Army PM-MCD, ARDEC, ARL	ALLOT	Various	NA	NA	41.462		6.015	2.914	3.999	Cont.	Cont.
Alliant Tech Systems, MN	CPIF	Jul-88	35.740	35.740	31.047		2.341				33.388
Support and Management Organizations											
Test and Evaluation Organizations											
AF Special Mission OT&E Center	ALLOT	Dec-94	NA	NA	1.500						1.500
US Army Test & Evaluations Command	MIPR	Jan-97	NA	NA			1.200	0.500	0.500		2.200

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					79.998		8.646	2.914	3.999	Cont.	Cont.
Subtotal Support and Management											
Subtotal Test and Evaluation					1.500		1.200	0.500	0.500		3.700
Total Project					81.498		9.846	3.414	4.499	Cont.	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160405BB Special Operations Intelligence Systems Development

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
PE 1160405BB (Special Operations Intelligence Systems Development)	2.092	10.305	1.805	2.026	3.752	1.392	1.423	Cont.	Cont.
S400, SOF Intelligence R&D	2.092	10.305	1.805	2.026	3.752	1.392	1.423	Cont.	Cont.

A. Mission Description and Budget Item Justification

Projects provide for identification, development, testing, and integration of selected SOF intelligence equipment to eliminate deficiencies in providing timely intelligence to deployed forces.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S400, SOF Intelligence R&D	2.092	10.305	1.805	2.026	3.752	1.392	1.423	Cont.	Cont.

A. Mission Description and Budget Item Justification

This project provides for the identification, development, and testing of Special Operations Forces (SOF) intelligence equipment to identify and eliminate deficiencies in providing timely intelligence to deployed forces. The following distinct sub-projects address the primary areas of intelligence dissemination, sensor systems, integrated threat warning to SOF mission platforms, and tactical exploitation of national capabilities. USSOCOM has developed an overall strategy to ensure that Command, Control, Communications, Computers, and Intelligence (C4I) systems continue to provide SOF with the required capabilities into the 21st century. USSOCOM's C4I systems comprise an integrated network of systems providing positive command and control and timely exchange of intelligence and threat warning to all organizational echelons. The C4I systems that support this new architecture will employ the latest standards and technology by transitioning from separate systems to full integration with the infosphere. The infosphere will allow SOF elements to operate with any force combination in multiple environments. The C4I programs funded in this project are grouped by the level of organizational element they support: Operational Element (Team), Above Operational Element (Deployed), and Above Operational Element (Garrison). Sub-projects include:

OPERATIONAL ELEMENT (TEAM)

- PRIVATEER. PRIVATEER is part of an evolutionary signal intelligence system migration and acquisition program that provides a permanent full spectrum Radar and Communications Early Warning capability aboard Cyclone-Class Patrol Coastal (PC) and the MK V Special Operations Craft (SOC). The PC configuration is confined to the electronic surveillance mission area, while the MK V SOC configuration has been expanded to include an electronic attack capability for self-defense. A subset of the Joint Threat Warning System, PRIVATEER hosts a common software architecture that controls a variety of hardware modules designed to satisfy the unique platform requirements of each ship class. System configuration provides the equipment necessary to monitor and provide direction finding on radar

and communications signals of interest. Also provides broadcast threat warning capability. Architecture is Joint Deployable Intelligence Support System/Joint Maritime Communications and Intelligence Support System compliant with UNIX-based software.

- SILENT SHIELD. The SILENT SHIELD is part of an evolutionary Joint Threat Warning System migration being developed to support SOF-wide operations. System development emphasizes a rapid prototyping effort to develop, test and field systems that provide direct threat warning and enhanced situational awareness data to SOF aircrews at the Collateral SECRET level.

- Tactical Exploitation of National Capabilities (TENCAP). TENCAP is a project to introduce and integrate national systems capabilities into the SOF force structure and operations. TENCAP activities include increasing national systems awareness; demonstrating the tactical utility of national system data; testing technology and evaluating operational concepts in biennial Joint Staff Special Projects; and transitioning promising concepts and technologies into the SOF materiel inventory.

- Joint Threat Warning System (JTWS). JTWS develops a modular, scaleable system that consists of user defined, integrated common hardware modules driven by an interoperable software architecture and configurable for use in manpack, unattended, and platform versions (ground, aircraft, and maritime). JTWS functional requirements include communications monitoring and direction finding, and receipt and correlation of near-real-time tactical intelligence broadcasts.

- SOF SIGINT Manpack System (SSMS). The SSMS is designated evolutionary and assigned the nomenclature AN/PRD-13. It is part of an evolutionary SIGINT system migration and acquisition program that provides a permanent full spectrum Communications Early Warning capability to ground, maritime and air components of the SOF. Program acquires manpackable, lightweight communications early warning and direction finding systems that weigh less than 38 pounds and fit within an Alice pack. Initial acquisition provided NDI capability that has now been substantially improved to reduce weight and power while significantly improving capability through multiple receivers and reduced numbers of antennas. Premier system within SOF whose capability has been expanded to support the unique platform requirements of maritime and airborne platforms. Migrates into the Joint Threat Warning System.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

ABOVE OPERATIONAL ELEMENT (DEPLOYED)

- Joint Deployable Intelligence Support System (JDISS) - Special Operations Command Research, Analysis, and Threat Evaluation System (JDISS-SOCRATES). The JDISS-SOCRATES program provides a wide range of mission-directed automated intelligence and imagery support to USSOCOM and components and extension to USSOCOM mission support units, Theater Special Operations Commands, and forward-deployed SOF. JDISS-SOCRATES is a UNIX-based, client server architecture which allows single workstation access to the databases and provides secure, on-line services to remote sites via SCAMPI (a secure communications distribution system) and the Joint Worldwide Intelligence Communications System. Much of the data is acquired from national intelligence assets/databases and tailored to SOF needs. JDISS-SOCRATES provides near-real-time intelligence to the SOF community. JDISS-SOCRATES capabilities include data processing, secure voice/video conferencing, news and message traffic, video mapping, soft copy imagery processing and secondary imagery dissemination. This program ensures SOF interoperability and connectivity with Theater, Service, and national intelligence systems.

- SOF Intelligence Vehicle (SOF IV). The SOF IV is a deployable, automated, multi-source intelligence processing and dissemination system. The SOF IV extends the Joint Deployable Intelligence Support System/Special Operations Command Research, Analysis and Threat Evaluation System architecture to the Joint Special Operations Task Force level permitting automated interface to all theater-level intelligence data handling systems. SOF IV provides for the receipt, processing, andmanipulation of near-real-time intelligence data in order to produce highly tailored, accurate and timely intelligence products to support deployed Special Operations Forces. The system employs a high mobility multi-purpose wheeled vehicle configured with a rigid wall, standard integrated command post shelter to house computer servers, mass storage devices, and communications equipment, and a tent extension for the remote operation of analyst workstations. It incorporates DoD Intelligence Information System and Joint Deployable Intelligence Support System standards and products in accordance with JCS direction. A second configuration of the system also exists with identical performance capabilities using a modular, transit case design. SOF IV is an Evolutionary Acquisition Program. The acquisition strategy includes a block upgrade process that will occur over the life of the system.

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APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

ABOVE OPERATIONAL ELEMENT (GARRISON)

- JDISS-SOCRATES. JDISS-SOCRATES provides a wide range of mission required automated intelligence and imagery support to USSOCOM, component commands and operating forces. JDISS-SOCRATES, a Wide Area Network based multi-functional intelligence system, incorporates a variety of computers, data bases, intelligence communication systems, secure phones, facsimile equipment, imagery processing, secondary imagery dissemination and map handling equipment. JDISS-SOCRATES provides SOF with unprecedented access to both national and specially-focused intelligence products, satisfying long-standing intelligence deficiencies identified in all five regional Commander In Chief Theater Intelligence Architectures. Product improvements are focused on integration of emerging intelligence community systems, technology, and standards into the JDISS-SOCRATES architecture. Near-term improvements are focused on implementation of UNIX-based client server environment and integration of Department of Defense Intelligence Information System Management Board directed JDISS standards.

FY 1997 ACCOMPLISHMENTS:

- (1.000) Joint Threat Warning System (JTWS). Initiated design and development of a multi-functional trainer for the JTWS, beginning with the maritime modules supporting the cyclone-class Patrol Coastal (PC) and the MK-V Special Operations Craft (SOC). (3-4QTR97)

- (0.557) Tactical Exploitation of National Capabilities (TENCAP). Developed and tested HAMLET'S TRACK tagging devices. Evaluated new imagery exploitation applications using the HAMLET'S COMMON test facility. Demonstrated the capability to inject Special Reconnaissance reporting into intelligence broadcasts by Project TOWN CRIER. Continued to provide systems engineering and technical assistance. (1QTR97-4QTR97)

- (0.250) SILENT SHIELD. Integrated the Briefcase Multi-mission Advanced Tactical Terminal into SILENT SHIELD. (4QTR97)

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- (0.165) SOF SIGINT Manpack System. Modified and tested three MA-445 antennas to improve the sensitivity in the low VHF range. (2QTR97)

- (0.120) Joint Deployable Intelligence Support System - Special Operations Command Research, Analysis, and Threat Evaluation System. Provided an on-site Long-Range Information Networked Communications Services (LINCS) representative at USSOCOM for Alpha design and Beta demonstration of network design topologies. (1QTR97)

FY 1998 PLAN:

- (1.129) TENCAP. Continue to assess technology and operational utility of HAMLET's TRACK (tagging and tracking technologies). Participate in JCS and theater CINC advanced concepts technology demonstrations which evaluate National Technical Means support to amphibious operations. Continue to provide systems engineering and technical assistance. (1QTR98-3QTR98)

- (3.277) PRIVATEER. Support technology insertion of broadcast threat warning capabilities and migration to Defense Information Infrastructure (DII) Common Operating Environment (COE). Effort includes related special processing, analysis and display capability supporting both Patrol Coastal and MK V Special Operations Craft (SOC). Continue Joint Deployable Intelligence Support System/Joint Maritime Communications and Intelligence Support System architecture migration into the DII COE. Deliver, install and evaluate electronic attack capability for initial operational test and evaluation (IOT&E) and OT&E for the surveillance system onboard the MK V SOC. (1QTR98-3QTR98)

- (0.217) SILENT SHIELD. Continue integration and testing aboard SOF aircraft initiated under the Joint Intelligence Systems Integration Program in FY 1996. (1QTR98-2QTR98)

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- (2.841) SOF Intelligence Vehicle. Initiate the Evolutionary Acquisition Strategy by creating a new software baseline. Integrate and test the new software baseline. Candidates for the upgrade process include: Dual LAN, Global Broadcast Systems, Multi-Level Security, National Migration Systems, Defense Information Infrastructure (DII) Common Operating Environment (COE), Scalability, Mission Planning, Analysis, Rehearsal, Execution, Joint Stars, Service Migration Systems, Global Command and Control System, Access and Retrieval of Meteorological and Oceanographic Data, Video Teleconferencing, Wireless LAN, and Integrated GPS (2QTR-4QTR98)

- (2.841) Joint Threat Warning System. Complete the design and development of a multi-functional trainer. (2QTR-3QTR98)

FY 1999 PLAN:

- (1.059) TENCAP. Participate in JCS and theater CINC advanced concepts technology demonstrations which continue to evaluate National Technical Means support to amphibious operations, overall interoperability and support of combined SOF and conventional operations. Assess technology and operational utility of HAMLET's FOREST and HAMLET's TRACK. Provide systems engineering and technical assistance. (1QTR99-3QTR99)

- (0.746) SILENT SHIELD. Continue integration and testing aboard SOF aircraft. (1QTR99)

ACQUISITION STRATEGY: NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160405BB Special Operations Intelligence Systems Development / Project S400

B. Program Change Summary

	FY 1997	FY 1998	FY 1999	Total Cost
Previous President's Budget	1.946	4.914	1.839	Cont.
Appropriated Value	2.315	10.914		
Adjustments to Appropriated Value / President's Budget	(0.223)	(0.609)	(0.034)	
Current Budget Submit	2.092	10.305	1.805	Cont.

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for the Small Business Innovative Research program and implementation of Congressional Defense reductions. FY 1998 increase is a Congressional plus-up for the SOF Intelligence Vehicle (SOF IV) and the Joint Threat Warning System (JTWS). FY 1998 and FY 1999 decrease is for Congressional inflation adjustments, supplemental bills, and program restructure and decrease to support higher command priorities.

Schedule: Added SOF IV and JTWS.

Technical: None.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
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C. Other Program Funding Summary

	FY97	FY98	FY99	FY00	FY01	FY02	FY03	To Complete	Total Cost
PROC, SOF Intel Systems	25.044	23.815	19.148	23.175	39.464	14.603	14.940	Cont.	Cont.

D. Schedule Profile

	FY96				FY97				FY98				FY99			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JDISS-SOCRATES Version Upgrades		x	x	x												
SILENT SHIELD Integration and Test			x					x	x	x	x	x	x	x	x	x
Milestone II					x											
PRIVATEER Evolutionary Technology Insertion Special Program Review										x						
JTWS Prototyping							x	x	x	x	x	x				
SOF IV Integration and Test										x	x	x				

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: FEBRUARY 1998	
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160405BB Special Operations Intelligence Systems Development / Project S400		
A. Project Cost Breakdown ($ in millions)	FY97	FY98	FY99
1. JDISS-SOCRATES			
Software Development and Integration	0.120		
2. Tactical Exploitation of National Capabilities			
Systems Engineering	0.438	0.424	0.420
Hardware Prototyping	0.119	0.705	0.639
3. SILENT SHIELD			
B-MATT Integration	0.250		
DT&E/IOT&E		0.217	0.746
4. PRIVATEER			
Software Development		0.488	
DT&E		1.400	
OT&E		1.389	
5. JTWS			
Hardware Prototyping	1.000	2.841	
6. SSMS			
Hardware Prototyping	0.165		
7. SOF Intelligence Vehicle			
Software Integration/Test		2.841	
TOTAL:	2.092	10.305	1.805

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)	DATE: FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160405BB Special Operations Intelligence Systems Development / Project S400

B. Budget Acquisition History and Planning Information

Performing Organizations

Actual or Budget Value ($ in millions)

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Product Development Organizations											
SAIC, McLean, Va	C/CPFF	Various	0.166	0.166	0.166		0.120				0.286
NRL, Washington, DC	MIPR	Various	1.456	1.456	1.456						1.456
E-Systems, Greenville, TX	C/CPFF	Sep-92	3.960	3.960	3.960						3.960
Delfin Systems, Santa Clara, CA	C/CPFF	Aug-92	2.953	2.953	2.953		0.165				3.118
USAF, SAF Washington, DC	Various	Various	Cont.	Cont.	2.100					Cont.	Cont.
Defense, Opnl Spt Ofc, Washington, DC	Various	Various	Cont.	Cont.	0.200					Cont.	Cont.
LORAL Fed Sys, Owego, NY	SS/CPFF	Aug-94	10.450	10.450	10.450						10.450
E-Systems, Greenville, TX	Various	Various	Cont.	Cont.	1.428					Cont.	Cont.
NISE-E, Charleston, SC	Various	Various	Cont.	Cont.	1.627		1.000	6.118		Cont.	Cont.
NSA, Washington, DC	MIPR	Dec-95	0.215	0.215	0.215						0.215
Aeronix, Melbourne, FL	C/CPFF	Jul-96	0.404	0.404	0.404		0.015				0.419
Miscellaneous	Various	Various	N/A	N/A	13.717		0.354	3.763	1.385		N/A
Support and Management Organizations											
Booz-Allen & Hamilton	CPFF	Apr-93			1.200		0.438				1.638
Unknown	CPFF	Oct-97						0.424	0.420	Cont.	Cont.
Test and Evaluation Organizations											
DESA, Kirkland AFB, NM	MIPR	Feb-95	0.217	0.217	0.217						0.217

Government Furnished Property

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date		Total Prior to FY97		Budget FY97	Budget FY98	Budget FY99	To Complete	Total Program
Subtotal Product Development					38.676		1.654	9.881	1.385	Cont.	Cont.
Subtotal Support and Management					1.200		0.438	0.424	0.420	Cont.	Cont.
Subtotal Test and Evaluation					0.217		0.000	0.000	0.000		0.217
Total Project					40.093		2.092	10.305	1.805	Cont.	Cont.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE PE 1160407BB SOF Medical Technology Development

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
PE 1160407BB (SOF Medical Technology Development)	1.789	1.883	2.015	2.073	2.115	2.162	2.210	Cont.	Cont.
S275, SOF Medical Technology R&D	1.789	1.883	2.015	2.073	2.115	2.162	2.210	Cont.	Cont.

A. Mission Description and Budget Item Justification

Projects provide studies and laboratory prototypes for USSOCOM to link non-system basic research and exploratory development to SOF specific system engineering and manufacturing development and procurement. The focus is on medical technologies, centering on physiologic, psychologic and ergonomic factors affecting the ability of forces to perform their missions.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

COST (Dollars in Millions)	FY97	FY98	FY99	FY00	FY01	FY02	FY03	Cost to Complete	Total Cost
S275, SOF Medical Technology R&D	1.789	1.883	2.015	2.073	2.115	2.162	2.210	Cont.	Cont.

A. Mission Description and Budget Item Justification

This program provides studies, non-system exploratory advanced technology development and evaluations. The focus is on medical technologies, centering on physiologic, psychologic, and ergonomic factors affecting the ability of Special Operations Forces (SOF) to perform their missions. Current equipment and technology does not meet force requirements. The unique nature of special operations requires unique approaches to combat casualty care, medical equipment and other life support capabilities including life support for high altitude parachuting, combat swimming and other SOF unique missions. This program provides guidelines for the development of selection and conditioning criteria, thermal protection, decompression procedures, combat casualty procedures and life support systems. The program supports the development and evaluation of biomedical enhancements for the unique requirements of all SOF in the conduct of their diverse missions. This effort is defined by the following seven areas of investigation:

- Combat casualty management in SOF operations will: (1) review the emergency medical equipment currently used in the SOF community and compare this to currently available civilian technology; it will also provide field testing of emergency medical equipment in the adverse environmental conditions encountered in SOF; (2) evaluate current tactical combat casualty care doctrine to ensure consideration of the wide variety of tactical scenarios encountered and apply the latest concepts in casualty care to these circumstances; and, (3) develop CD-ROM and internet compatible automated programs to support SOF medical personnel information needs while operating in austere locations and medical interviews in multiple foreign languages.

- Decompression procedures for SOF diving operations will: (1) decrease the decompression obligation in SOF diving operations through the use of surface-interval oxygen breathing; and, (2) investigate pre-oxygenation requirements for high-altitude SOF parachute operations.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

- Exercise-related injuries will evaluate the effectiveness of applying sports medicine diagnostic, therapeutic, and rehabilitative techniques in management of the traumatic and overuse injuries commonly encountered among SOF operators.

- Inhaled gas toxicology will: evaluate the feasibility of using pharmacologic intervention to reduce or eliminate the possibility of central nervous system toxicity.

- Medical sustainment training techniques will: (1) examine novel ways of both providing and documenting medical sustainment training for SOF corpsmen and physicians; and, (2) develop a system for constantly upgrading the medical expertise of SOF medical personnel by incorporating new research reports and clinical information into a CD-ROM based computer system which can be used by medical personnel in isolated duty circumstances.

- Mission-related physiology will: (1) develop accurate measures to evaluate SOF mission-related performance; (2) evaluate the suitability of photorefractive keratectomy, a new refractive surgical procedure, for special operations personnel; (3) delineate nutritional strategies designed to help personnel apply known nutritional concepts to optimize performance in mission and training scenarios; (4) evaluate potential ergogenic agents as they apply to enhancing mission-related performance; (5) study the safety and efficacy of using caffeine to increase performance in sustained operations; (6) develop a quantitative test for night vision suitable for screening SOF candidates and study ways to enhance unaided night vision; (7) develop techniques for using oxygen to increase breathhold dive time; and, (8) study pharmacologic measures to prevent acute mountain sickness in high terrestrial SOF operations.

- Thermal protection will: (1) conduct a survey of available thermal protection garments and conduct a comparative study to determine their relative effectiveness at protecting personnel engaged in small boat operations; and, (2) evaluate the efficacy of current thermal protective measures in maintaining combat swimmer performance.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

FY 1997 ACCOMPLISHMENTS:

- (1.206) Continued ongoing studies as follows: Special Operations Forces (SOF) Computer-Assisted Medical Reference System; Special Operations Interactive Medical Training Program; Combat Casualty Equipment Review; Ergogenics (Performance Enhancing Agents) in Special Operations; Laser Eye Protection in Special Operations; Thermal Protection and Diver Performance in SOF Combat Swimmers; Tactical Combat Casualty Care in SOF Operations; Excimer Laser Photorefractive Keratectomy in SOF Personnel; Night Vision Enhancement; Pre-Oxygenation Requirements in High Altitude Low Opening Operations; SOF Physical Fitness Guide; Air/0.7 Atmosphere Absolute Decompression. (1QTR97)

- (0.583) Initiated new studies such as: Thermal Stress in Current Special Operations; Draegar LAR V Canister Limits for SEAL Delivery Vehicle (SDV) Operations; Special Operations World Wide Area Medical Information; Oxygen Enhanced Breathhold Diving, and Fibrin Bandage Study. (1QTR97-4QTR97)

FY 1998 PLAN:

- (1.067) Continue ongoing studies as follows: Fibrin Bandage Study, SOF Interactive Medical Training Program, Tactical Combat Casualty Equipment Review, Combat Casualty Care in SOF Operations, SOF Computer Assisted Medical Reference System, Ergogenics (Performance Enhancing Agents) in Special Operations, Laser Eye Protection in Special Operations, Excimer Laser Photorefractive Keratectomy in SOF Personnel, Night Vision Enhancement, Air/0.7 Atmosphere Absolute Decompression, and Oxygen Enhanced Breathold Diving Training. (1QTR98)

- (0.816) Initiate new studies as follows: Respiratory Muscle Endurance, Effect of Submarine Deployments on SOF Mission-Related Performance, Adjuncts to Recompression Therapy, Testing of Exotemp Active Thermal Protection System, Oxygen Arterial Gas Embolism, Tactical Health Risk Assessment in SO, and Evaluation of a Special Operations Resuscitative Surgical Suite, and Post-Exercise Nutrient Supplementation. (1QTR98-2QTR98)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

FY 1999 PLAN:

- (1.221) Continue ongoing studies as follows: Combat Casualty Equipment Review, Tactical Combat Casualty Care in SOF Operations, Respiratory Muscle Endurance Testing, Special Operations Interactive Medical Training, SOF Computer-Assisted Medical Reference System. (1QTR99)

- (0.794) Initiate new studies as follows: Card Diagnostics in SOF, Hypotensive Fluid Resuscitation in Uncontrolled Hemorrhage, SOF Video-Based Interactive Tactical Combat Casualty Care Training, Characterization of SOF Mission-Related Performance Levels, Hemostatic Agents in Uncontrolled Hemorrhage, Fluid Resuscitation Strategies in Delayed Surgery, Adjuncts to Recompression Therapy in the Management of Dysbaric Diseases - Human Trials, Adjuncts to Recompression Therapy in the Management of Dysbaric Diseases - Animal Trials, Evaluation of Decompression Risk using the VVAL 18 Decompression Algorithm, Influence of Post-Landing Exercise on Altitude DCS, Internet-Based Medical Information Management in Special Operations. (2QTR99)

ACQUISITION STRATEGY: NA

Previous President's Budget	1.803	2.029	2.077	Cont.
Appropriated Value	1.887	2.029		
Adjustments to Appropriated Value / President's Budget	(0.098)	(0.146)	(0.062)	
Current Budget Submit	1.789	1.883	2.015	Cont.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION / BUDGET ACTIVITY RDT&E, DEFENSE-WIDE / 7	R-1 ITEM NOMENCLATURE / PROJECT NO. PE 1160407BB SOF Medical Technology Development / Project S275

Change Summary Explanation:

Funding: FY 1997 decrease is project cost share for the Small Business Innovative Research (SBIR) program and implementation of Congressional Defense reductions. FY 1998 decrease is project cost share for SBIR, Congressional inflation adjustments and supplemental bills. FY 1999 decrease is for Congressional inflation adjustments and program restructure and decrease to support higher command priorities.

Schedule: None.

Technical: None.

C. Other Program Funding Summary None.

D. Schedule Profile NA.

DEFENSE SECURITY ASSISTANCE AGENCY

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Defense Security Assistance Agency
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0400 D Research Development Test & Eval Defwide

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
69	0603790T	NATO Research and Development	4			10,762	U
86	0605104T	Technical Studies, Support and Analysis	4			980	U
87	0605110T	Critical Technology Support	4			2,618	U
		Demonstration and Validation				14,360	
Total		Defense Security Assistance Agency				14,360	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE FEBRUARY 1998
APPROPRIATION/BUDGET ACTIVITY Research, Development, Test and Evaluation, Defense-wide /BA 4	R-1 ITEM NOMENCLATURE NATO Cooperative R&D PE 0603790T

COST *(In Millions)*	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Cost to Complete	Total Cost
Total Program Element (PE) Cost	*9,312	*8,245	10,762	11,362	10,615	11,989	11,342	Continuing	Cont.
P790-NATO Cooperative R&D	*9,312	*8,245	10,762	11,362	10,615	11,989	11,342	Continuing	Cont.

* These funds were previously contained in PE 0603790D This new PE is an administrative change to accommodate a reorganization of OSD.

A. Mission Description and Budget Item Justification

These funds will be used by the Services and Defense Agencies to initiate international cooperative research and development programs with the NATO and major non-NATO allies. The program implements the provisions of Title 10 U.S. Code, Section 2350a. The purpose of the program is to improve the defense acquisition system by sharing technology and jointly developing military equipment with our allies. This will also improve operational efforts by improving interoperability through use of similar equipment and improved interfaces.

The program is designed to provide "Venture Capital" to the services/agencies. The program is implemented by the services/agencies submission of candidate projects that will take advantage of international cooperative to jointly fulfill military requirements. Candidates are reviewed and approved by the USD(A&T). The services/agencies will complete an international agreement with an ally that fully defines the project responsibilities and objectives prior to release of funds. The funds are used to support all associated R&D costs including the identification of cooperative opportunities and administration of the program. The planned program is shown below. The final program will be reported separately as required by 10USC2350a(f). The program is complementary to a similar PE in each service that provides continuation funding for these programs

FY 1997 Accomplishments (note this was accomplished under PE 0603790D)

This project is providing funding for cooperative opportunities that are managed by the services. All of these have approved international agreements which define the responsibilities of each country. The USD(A&T) provided approval of each effort as having an important military need. These include Artillery

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY Research, Development, Test and Evaluation, Defense-wide/BA 4	R-1 ITEM NOMENCLATURE NATO Cooperative R&D PE 0603790T

Systems Cooperation(0.25), Cooperative Eyesafe Laser Radar(1.2), Focal Plane Array(0.78) Cooperation on Engineer Tools(0.25) Multiservice Transport for High Speed Network(0.75), Trimaran Hull(0.5) Aftbody/Nozzle Aeroacoustics(0.05) R/SAOC(1.35), Hawk Fire Detection(3.35) and Space Module(.75) ($9.3) million)

FY1998 Plans (note this was accomplished under PE 0603790D)

Funds for defense agencies and to initiate new service concepts. These include: AUTONAV (1.00), TAC-JAM(0.5), Anti-Torpedo Torpedo (2.0), VECTOR (1.0), ACES II Ejection Seat (0.5), (Advance Hybrid Rocket Propulsion (1.0), Air Battle Management Capabilities (1.2), Air C3I Capabilities (NATO) (0.3),Experimental Module (0.5) Total $8.2)

FY1999 Plans

Funds new projects that will be identified by the military laboratories and approved by the USD(A&T) to take advantage of cooperative opportunities to reduce cost, maximize use of allied technology and improve interoperability.

B. Program Change Summary

	FY1997	FY1998	FY1999	Total Cost
Previous President's Budget	9.744	13.744	10.974	Cont.
Appropriated Value	9.317	8.500		
Adjustments to Appropriated Value	-0.005	-0.255		
Current Budget Submit	9.312	8.245	10.762	Cont.

Change Summary Explanation:

Funding: FY 1997 change is the result of undistributed congressional reductions.
Schedule: No Change
Technical: No Change

C. Other Program Funding Summary

	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	Completion
Procurement Line P-1 No(s): N/A								
Related RDT&E:								
0603790A	9.495	8.866	11.161	11.300	11.900	12.100	12.300	Cont.
0603790F	9.767	10.414	11.117	11.291	11.913	12.026	12.255	Cont.
0603779N	9.381	9.672	11,004	10.922	11.580	11.747	11.911	Cont.

D. Schedule Profile: N/A

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE **February 1998**
APPROPRIATION/BUDGET ACTIVITY **Research, Development, Test & Evaluation,**					R-1 ITEM NOMENCLATURE **Technical Studies, Support & Analysis**				**PE 0605104T**
COST (In Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003		
Total Program Element (PE) Cost	1.0*	1.0*	.980	.978	.972	.970	.967		
P421 Tech Studies, Support & Analysis	1.0*	1.0*	.980	.978	.972	.970	.967		

* These funds were previously contained in PE 0605104D. This new PE is an administrative change to accommodate a reorganization of OSD

A. Mission Description and Budget Item Justification

BRIEF DESCRIPTION OF ELEMENT: This program element is the primary source of funding for OSD international armaments cooperation studies, analyses, management, and technical support efforts to improve and support policy development, decision-making, management and administration of DoD programs and activities. Specific projects address a variety of complex issues and dynamic problems facing the Under Secretary of Defense for Acquisition and Technology [USD(A&T)] in International Armaments Cooperation programs. The evolving milieu of coalition warfare, limited resources and an increasingly global industrial and technological base mandate comprehensive understanding and direct addressing of issues related to international armaments cooperation. As part of the Defense Reform Initiative, OSD International Armaments Cooperation efforts will merge with current Defense Security Assistance Agency to form a new organization. Because of the inter-agency discussions and coordination required of the new organization, funding for current and future technical studies, support and analysis assumes greater importance. Studies and analyses examine the implications and consequences of current and alternative policies, strategies and budgets, and are essential for understanding the complex international, political, economic, military, and technological environments in which defense acquisition decisions and opportunities take place.

PROGRAM ACCOMPLISHMENTS AND PLANS:

General Support for USD(A&T):

FY 1997 Accomplishments:

- Performed ODC/DCA Study follow-on
- Continued very successful MOU process support
- Analysis of effects of offsets in Aerospace Trade
- Assessment of European Defense industrial cooperation

FY 1998 Plans:

- Analysis of European Defense Industrial Strategies and Cooperative Programs and Possible U.S. Responses/ICOG
- Development and Maintenance of International MOU Data Base for use by OSD, all Services and Components
- Document International Cooperative Research and Development
- Develop Defense Modeling and Simulation Initiative with the Republic of Korea

FY 1999 Plans: This program is the primary funding source for acquiring high quality, objective studies, analyses, and policy research supporting senior DoD management and decision makers in the Office of the Secretary of Defense. It produces the analytical bases for mission area rethinking, policy analysis and modeling, policy development, and program management across all functional areas of the OUSD (Acquisition & Technology)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE **February 1998**
APPROPRIATION/BUDGET ACTIVITY **Research, Development, Test & Evaluation, Defense-wide**	R-1 ITEM NOMENCLATURE **Technical Studies, Support & Analysis PE0605104D**

B. Program Change Summary	FY 1997	FY1998	FY1999	TOTAL COST
Previous President's Budget	N/A	N/A	N/A	
Appropriated Value	N/A			
Adjust to Appropriated Value/President's Budget	N/A			
Current Budget Submit/President's Budget	N/A	N/A	0.980	N/A
Below Threshold Reprogramming	0			
Congressional Distributed and Undistributed Reductions				
Change Summary Explanation: Undistributed Reductions				

Funding:.
Schedule: N/A
Technical: N/A

C. Other Program Funding Summary Cost **N/A**

D. Schedule Profile **N/A**

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE February 1998		
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6					R-1 ITEM NOMENCLATURE USD(A&T) -Critical Technology Support PE 0605110T*					
COST *(In Millions)*			FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004
Total Program Element (PE) Cost			2,608**	2.584**	2.618*	2.697*	2.676*	2.728*	2.782*	Cont.
Critical Technologies Program P204			2,608**	2.584**	2.618*	2.697*	2.676*	2.728*	2.782*	Cont.

* PE 0605110D8Z transferred to the Agency for Defense Cooperation (ADC) into PE 0605110T

** Executed under PE 0605110D8Z

A. (U) Mission Description and Budget Item Justification

A1. (U) BRIEF OVERVIEW DESCRIPTION OF TOTAL PROGRAM:

(U) This program element supports development and publication of the Congressionally mandated Militarily Critical Technologies List (MCTL). The MCTL is the fundamental source document for identification of leading edge and current technologies which must be monitored and assessed world-wide for national security and nonproliferation control of weapons of mass destruction and advanced conventional weapons. Funds continuous technical support to interdepartmental and international processes which develop multinational control agreements on technologies of concern to DOD. Provides foreign technology assessments for the MCTL and other critical technologies efforts. Identifies and

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T) -Critical Technology Support PE 0605110D8T*

A1. (U)BRIEF OVERVIEW DESCRIPTION OF TOTAL PROGRAM: (Continued)

determines technical parameters for proposals for international control of weapons of mass destruction. Provides technical assessments to support treaty compliance inspections and decisions on foreign ownership of US industrial assets. Identifies foreign technologies of interest to the DOD and develops opportunities for international cooperative research and development. Includes funding for travel by OSD personnel in support of the management and technical objectives. This program element is responsive to time critical requirements established in interdepartmental and international processes required to meet Congressional mandates to identify, control, transfer and develop militarily critical technologies.

A2. (U) FY 1997 ACCOMPLISHMENTS:

(U) In concert with Department of State provided leadership and technical support in the development of United States Government (USG) proposals for multinational negotiations at the Wassenaar Arrangement (successor to CoCom) to ensure continued control of technologies critical to US military and economic security. Analyzed and documented the US and International participation on the Wassenaar Arrangement. Developed proposals for Missile Technology, Nuclear and BW/CW export control regimes. ($.5 Million)

(U) Developed and published a draft of the MCTL-Part II Weapons of Mass Destruction Technologies. Published MCTL part I Weapons Systems Technologies on the Internet and on CD-ROMs. ($.908 Million)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T) -Critical Technology Support PE 0605110D8T*

A2. (U) FY 1997 ACCOMPLISHMENTS: (Continued)

(U) Provided on site support at international technology negotiations and analyzed and documented US and International Participation. ($.2 Million)

(U) In concert with industry, Government and academia conducted worldwide technical assessments of dual use technologies related to Theater Missile Defense and Defense Technology Planning to determine the militarily critical technology parameters. The assessments clearly highlight critical technologies and provided technical rationale for export control changes. ($.7 Million)

(U) Identified Commercial Technologies which are candidates for application in US weapons systems. ($.3 Million)

A3. (U) FY 1998 PLANS:

(U) Develop and publish the MCTL Part III Developing Critical Technologies. Publish the MCTL Part II Weapons of Mass Destruction and Part III Developing Critical Technologies on the Internet and CD-ROMs. ($1.274 Million)

(U) Develop control/decontrol proposals addressing DOD concerns for multinational negotiations for the Wassenaar Arrangement, Missile Technology, Nuclear and BW/CW export control regimes. ($.3 Million)

(U) Provide on-site technical support at multinational negotiations for national security and nonproliferation regimes. ($.1 Million)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T) -Critical Technology Support PE 0605110D8T*

A3. (U) FY 1998 PLANS: (Continued)

(U) Monitor and assess technologies worldwide and develop technology assessments to support national military and economic security actions and identify candidate technologies for applications in US weapon systems. These accomplishments will reflect regional security concerns, effects of the proliferation of weapons of mass destruction and the rapid advancement of technology worldwide. ($.7 Million)

(U) Update on an ongoing basis MCTL Part I, Weapons Systems Technologies, and MCTL Part II, Weapons of Mass Destruction Technologies. ($.21 Million)

A4. (U) FY 1999 PLANS:

(U) Develop and publish updated MCTL Parts I, II and III in both hard copy and electronic versions incorporating results of the assessments completed in FY 1998 and changes in multinational control regimes. ($1.318 Million)

(U) Monitor and assess dual use and military technologies worldwide and develop technology assessments to support national military and economic security actions and identify candidate technologies for applications in US weapon systems. These assessments will reflect security concerns, effects of the proliferation of weapons of mass destruction and the rapid advancement of technology worldwide. ($.7 Million)

(U) Develop proposals for international control/decontrol of technologies for multinational negotiations for the Wassenaar Arrangement, Nuclear and BW/CW export control regimes. ($.1 Million)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T) -Critical Technology Support PE 0605110D8T*

A4. (U) FY 1999 PLANS: (Continued)

(U) Provide on-site leadership and technical support at multinational negotiations. ($.1 Million)

(U) Identify and assess opportunities for joint technology programs with other nations and US industry which would enhance capabilities of US military systems. ($.4 Million)

A5. (U) JUSTIFICATION FOR BUDGET ACTIVITY ASSIGNMENT FOR THE PROGRAM ELEMENT:

(U) The program element is correctly classified in Budget Activity 6 because it provides operational technical support for the Office of the Under Secretary for Acquisition and Technology by identifying and assessing militarily critical technologies DOD assesses as critical to maintaining superior US military capabilities. Some technologies may require protection under one of the multinational control regimes. Other technologies may be eligible for use in multinational technology programs.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T) -Critical Technology Support PE 0605110D8T*

A6. (U) ACQUISITION STRATEGY:

(U) The completion of the task detailed in this program element requires technical analyses across a broad spectrum of technologies which are deemed critical to continuing US military superiority. These analyses provide the basis for: the Militarily Critical Technologies List (required by the Export Administration Act); economic and national security assessments of controls in specified technology areas; foreign technology assessments to support economic and national security policy decisions; development of export control proposals for negotiations at the Wassenaar Arrangement and multinational control regimes and the identification of international cooperation opportunities. The USD(A&T) provides the technical management and oversight but does not have the broad technical expertise required to accomplish these tasks. This breadth of technical knowledge can only be obtained from Government, industry and the academic community.

(U) These tasks are best performed by a Federally Funded Research and Development Center (FFRDC). An FFRDC can produce independent and objective analyses of multinational programs which require access to the proprietary technical data of US and foreign defense industries, the existence and nature of which must be kept secret from potential competitors. The required access to sensitive US Government policies, and decision-making procedures concerning multinational defense critical technology programs, and the close collaboration with Government agencies required to perform these tasks, would give a contractor the marketing intelligence necessary to position itself unfairly in future multinational technology markets.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE February 1998
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/ BA: 6	R-1 ITEM NOMENCLATURE USD(A&T) -Critical Technology Support PE 0605110D8T*

B. (U) Program Change Summary:

	FY1997	FY1998	FY1999	Total Cost
Previous President's Budget	2.743**	2.690**	2.669*	Cont.
Appropriated Value	2.743**	2.690**	N/A	
Adjustments to Appropriated Value/ Presidents Budget				
Closed Account Adjustments	-1	N/A	N/A	
SBIR	-67	N/A	N/A	
Undistributed Congressional Adjustments	-67	-106	N/A	
Inflation Adjustment			-.051	
Current Budget Submit	2.608**	2.584**	2.618*	Cont.

* PE 0605110D8Z transferred to the Agency for Defense Cooperation (ADC) into PE 0605110T

** Executed under PE 0605110D8Z

C. (U) Other Program Funding Summary: N/A

D. (U) Schedule Profile: N/A

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DEVELOPMENTAL TEST AND EVALUATION, DEFENSE

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Defensewide
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0450 D Developmental Test & Eval, Defense

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
1	0604940D8Z	Central Test and Evaluation Investment	6	142,809	118,718	122,169	U
2	0605130D8Z	Foreign Comparative Testing	6	32,851	32,657	32,684	U
3	0605804D8Z	Development Test and Evaluation	6	100,132	94,350	96,253	U
		RDT&E Management Support		275,792	245,725	251,106	
Total		Developmental Test & Eval, Defense		275,792	245,725	251,106	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)					February 1998				
DIRECTOR TEST AND EVALUATION, DEFENSE (0450) BUDGET ACTIVITY SIX			CENTRAL TEST AND EVALUATION INVESTMENT PROGRAM (CTEIP) PE 0604940D						
$'s in Thousands	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	COST TO COMPLETE	TOTAL COST
PE 0604940D	142,809	118,718	122,169	128,418	128,774	124,035	133,937	Cont'g	Cont'g,

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

Since FY90 this program element has been, and continues to be, used to provide for and fund the development of critically needed, high priority, Test & Evaluation (T&E) Capabilities for joint/multi-Service requirements. The Central Test and Evaluation Investment Program (CTEIP) uses a corporate investment approach to combine Service and Defense Agency T&E requirements, maximize opportunities for joint efforts, and eliminate unwarranted duplication of test capabilities. CTEIP focuses investments on projects that will have high productivity returns on investment. Projects under the CTEIP Program Element (PE) support two basic tasks: investments to improve the test capabilities base (Joint Improvement and Modernization (JIM) projects), and development of near-term solutions to test capability shortfalls in support of an ongoing operational test program (Resource Enhancement Project).

The JIM projects fund critically needed test and evaluation investments in the major functional areas of: test mission command, control, communications and instrumentation; electronic warfare systems; threat and computational simulation test and evaluation; space systems T&E; weapons effects test capabilities; targets; and physical and environmental test capabilities. The investments include both the demonstration of advanced technologies needed to test increasingly complex and sophisticated weapon systems and the transition of these technologies into test capabilities. Examples of project subject matter include: automated data collection, processing, display and archiving; smart munitions testing; modeling and simulation; advanced electronic combat systems; low-observable technologies and signature measurements; targets and target control; time-space-position-indication; end-game measurement; testing of advanced materials application; test design; and advanced sensors and space systems. CTEIP continues as the focal point for fostering common architectures throughout the test and training communities to enhance the sharing of resources and links between test and training ranges. CTEIP has provided special focus to institutionalize the use of modeling and simulation as practical test methods; to link ranges through internetting to enhance inter-range and inter-Service cooperation and resource sharing; and, to ensure development and acquisition of common instrumentation necessary for a more efficient test infrastructure. These efforts directly support the Department's new initiative for T&E, the Simulation, Test and Evaluation Process (STEP). Test Capabilities Benefit Analyses are conducted to validate T&E requirements, to define integrated support systems, and

determine overall cost effectiveness of the proposed test investments. The use of DoD-wide criteria for requirement validation, prioritization, and risk assessment ensures an effective test resource investment program.

The Resource Enhancement Project (REP) funds development of near-term solutions for critical ongoing operational test support. The requirements for these solutions and test assets are generally not known more than two years in advance of a critical test requirement, and as such are not programmable within the normal planning and budgeting process. Funding these activities under the CTEIP provides the opportunity to coordinate and integrate these near term test requirements with the total DoD test and evaluation investment planning, and ensures their availability and legacy for other programs that may have similar testing requirements.

This Research Category 6.4 PE supports the development of proven technologies to provide major test and evaluation capabilities required to meet DoD component weapon system test requirements.

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS:**

FY 1997 Accomplishments:

JIM Projects:

- Achieved full operational capability of Common Airborne Instrumentation System.
- Achieved full operational capability of Smart Munitions Test Suite project.
- Initiated Magnetic Levitation Development for Holloman High Speed Sled Track Upgrade.
- Initiated Advanced Range Telemetry to increase efficiency and through put of telemetry channels.
- Initiated and developed Test Capability Benefit Analysis for the Electromagnetic Effects project.
- Initiated and developed Test Capability Benefit Analysis for Joint Advanced Missile Instrumentation project.
- Continued prototype design development of Common Display Analysis and Processing System.
- Continued design development of Virtual Test and Training Range project.
- Continued sensor development of Plume Measurement Facility.
- Continued the proof-of-concept for JADS Prototype Virtual Range project.
- Continued the Bistatic Coherent Measurement System sub-project of Advanced Radar Cross Section Measurement System project.
- Continued development of Hardened Subminiature Telemetry and Sensor System.
- Continued development of advanced digital, high resolution, color capable camera for the Airborne Separation Video sub-project within the Weapons Modeling and Simulation capability project.
- Continued development of the Joint Installed System Test Facility instrumentation capability including:
  - Completion of Real-Time Digitally Controlled Analyzer Processor datalink evaluation task;
  - Continuation of hardware and software design for Communication, Navigation, Identification Simulator;
  - Continuation of prototype design of Generic Radar Target Generator;

- Completion of initial design of Infrared Sensor Stimulator.
- Continued prototype design of Next Generation Target Control System.
- Continued engineering and manufacturing development (EMD) of Translated GPS Range System.
- Continued design and development of Transportable Range Augmentation Control System.
- Completed design phase of DoD Software Alpha Test Bed capability.
- Continued development of common validation process for Target Threat Validation project.
- Continued development of a Tri-Service Target Signature Measurement and Database System.
- Continued development of Test Enabling Network Architecture.
- Completed Automated Threat Measurement Equipment (Silver Bullet) project.
- Completed system design for Family of Interoperable Range System Transceivers.
- Initiated and conducted Test Capability Benefit Analysis of Joint Regional Range Complex.
- Continued development of models for testing and measuring weapon separation processes for Weapons Modeling & Simulation Capability project.
- Terminated development of Non-Cooperative Vector Scoring project.
- Continued Test Technology Development and Demonstration project.

Resource Enhancement Projects:
- Initiated Missile on a Mountain sub-project.
- Initiated Enhanced Threat System Replica (XM-43S) sub-project.
- Continued Test Resource, Analysis and Planning task.
- Continued near term tasks based on critical OT&E test capability shortfalls.
- Continued modification of a second Big Crow aircraft to support EW testing.
- Continued fabrication of hull for Aerial Target Launch Ship to enable unmanned launch of aerial targets.
- Continued development of a GPS jamming capability.
- Completed development of Video Tracking System for airdrop operations.
- Continued development of Vulnerability Assessment measurements.
- Terminated Advanced Airborne Interceptor Simulator development.

FY 1998 Plans:

JIM Projects:
- Continue Advanced Range Telemetry project to increase efficiency and through put of telemetry channels.
- Complete Target Threat Validation Project.
- Continue development of the Joint Installed System Test Facility instrumentation capability including:
  - Achievement of prototype design of Radar Target Generator;
  - Demonstration of prototype of Multi-Spectral Scene Projection capability;

  - Completion of Critical Design Review for Joint Communications Simulator of Communication, Navigation, Identification sub-project;
  - Initiation of integration and testing of Infrared Sensor Stimulator.
- Consolidate the efforts within the Joint Regional Range Complex, Virtual Test and Training Range, Common Display Analysis and processing System, and Test and Training Enabling Architecture projects into a singleproject entitled Foundation Initiatives 2010.
- Initiate Target Modeling and Simulation project to develop and enhance target signature predictive models.
- Restructure Next Generation Target Control System project.
- Complete prototype design of Transportable Range Augmentation Control System.
- Continue prototype design of Tri-Service Target Signature Measurement and Database System.
- Continue system EMD of Hardened Subminiature Telemetry and Sensor System.
- Continue development of Translated GPS Range System upgrade to Analog Translator/Translator Processor System.
- Continue Upgrade project at Holloman High Speed Sled Track.
- Complete final design for DoD Software Alpha Test Bed capability.
- Continue prototype design for Joint Airborne Missile Instrumentation project.
- Continue design of Electromagnetic Effects project.
- Complete development of three dimensional graphics system for tri-service airborne weapon separation techniques within Weapons Modeling and Simulation Capability project.
- Continue development of color and miniaturization of digital camera in the Airborne Separation Video project.
- Continue development of Bistatic Coherent Measurement sub-project of Advanced Radar Cross Section Measurement System project.
- Continue Test Technology Development and Demonstration project.

<u>REP Projects:</u>

- Complete modification of a second BIG CROW aircraft to support EW testing.
- Complete development of GPS jamming capability.
- Complete Vulnerability Assessment project.
- Complete Enhanced Threat System Replica (XM-43S) for testing U. S. Weapon Systems.
- Complete fabrication of hull for Aerial Target Launch Ship to enable unmanned launch of aerial targets
- Complete Missile on a Mountain sub-project.
- Initiate the development of the Simulation Testing Operations Rehearsal Model.
- Initiate the Ultraviolet Stimulator project.
- Initiate the development of the Realistic Operational Communication Scenarios.
- Initiate the Utah Test and Training Range Precision Guidance Munitions Project.
- Continue REP test resources, analysis and planning tasks.
- Resolve critical near term OT& E test asset shortfalls.

FY 1999 Plans:

JIM Projects:

- Complete full operational capability for Plume Measurement project.
- Complete JADS Prototype Virtual Range project.
- Demonstrate prototype of Transportable Range Augmentation Control System to Services.
- Achieve full operational capability for Transportable GPS Range System upgrade to Analog Translator/Translator Processor System.
- Complete Advanced RCS Measurement Project and transition to Service sustaining engineering and funding.
- Complete integration and testing of Airborne Separation Video digital camera.
- Transition the High Speed Massive Memory/Electronic Film Capability from a TTD&D effort to a JIM project to modernize range/test event imaging capabilities.
- Initiate the Electromagnetic Transient Test and Evaluation Facility project.
- Initiate the Electromagnetic Compatibility Automated Tests project.
- Continue ongoing Threat System Development projects.
- Continue development of the Joint Installed System Test Facility instrumentation capability including:
  - Demonstration of Flight Data Link Simulator portion of the CNI Simulator;
  - Completion of Multi-Spectral Scene Generator sub-project;
  - Achieve initial operational capability of Generic Radar Target Generator system;
  - Achieve initial operational capability for digital injection capability of Infrared Sensor Simulator.
- Initiate Joint Modeling and Simulation System (J-MASS) sub-project to develop common and multiple-use modeling and simulation models for threats.
- Continue development of concept of operations and sub-projects for the Foundations Initiatives 2010 Project.
- Initiate and conduct Test Capability Benefit Analysis for Land and Sea Vulnerability Test Capability to develop instrumentation for underwater explosion testing.
- Initiate and conduct Test Capability Benefit Analysis for Advanced Multiple Objective Acquisition System to develop next generation advanced range tracking system.
- Initiate and conduct Test Capability Benefit Analysis for EW Enhancement project to develop advanced EW test instrumentation for BIG CROW functions.
- Continue EMD of Hardened Subminiature Telemetry and Sensor System.
- Continue rebaselined development of Next Generation Target Control System.
- Continue development of Target Simulation and Modeling project.
- Complete prototype design of Tri-Service Target Signature Measurement and Database System.
- Continue development of Advanced Range Telemetry concepts.
- Continue EMD of instrumentation for Electromagnetic Effects project.
- Continue development of modules of Joint Airborne Missile Instrumentation.

- Complete Phase I of High Speed Sled Track Upgrade project.
- Continue Test Technology Development and Demonstration project.

REP Projects:
- Continue development of Simulation Testing Operations Rehearsal Model.
- Continue Ultraviolet Stimulator project.
- Continue development of Realistic Operational Communication Scenarios.
- Continue Utah Test and Training Range Precision Guidance Munitions Project.
- Continue REP test resources, analysis and planning tasks.
- Resolve critical near-term OT&E test asset shortfalls.

B. (U) PROGRAM CHANGE SUMMARY

	FY 1997	FY 1998	FY 1999
Previous President's Budget	142,809	131,353	138,793
Appropriated Value	142,809		
Adjustments to Appropriated Value			
a. QDR & Fiscal Guidance Adj			(2,857)
b. Software Adj			(703)
c. T&E Support Adj			(10,200)
d. Congressional Adj		(12,635)	
e. Purchase Inflation Adj			(2,864)
Current Budget Submit	142,809	118,718	122,169

C. (U) OTHER PROGRAM FUNDING NA

D. (U) SCHEDULE PROFILE NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)					February 1998				
DIRECTOR TEST AND EVALUATION, DEFENSE (0450) BUDGET ACTIVITY SIX			FOREIGN COMPARATIVE TESTING (FCT) PE 0605130D						
$'s in Thousands	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	COST TO COMPLETE	TOTAL COST
PE 0605130D	32,851	32,657	32,684	32,505	32,615	32,796	33,866	Cont'g	Cont'g

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

The mission of the Foreign Comparative Testing (FCT) program is to test and evaluate foreign non-developmental items (NDI) identified by the CINCs and Services in order to avoid costly and time consuming U.S. new start acquisition programs. The FCT program funds test and evaluation of allied and friendly nation's weapons and equipment to provide procurement alternatives to satisfy U.S. Armed Forces requirements or correct mission area shortcomings. The FCT program is congressionally mandated in Title 10, USC, Section 2350a. FCT projects are nominated by the Services and U.S. Special Operations Command (SOCOM) each year and submitted to Congress for approval prior to expenditure of funds. Approved projects are normally funded for one or two years.

This Research Category 6.5 PE is assigned and identified in this descriptive summary in accordance with existing Department of Defense policy.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

FY 1997 Accomplishments:

- Completed Automatic Chemical Agent Detector Alarm (ACADA)
- Completed Bearing Ambiguity Resolving Sonar
- Completed C-17 Infrared Decoy Flare
- Completed Cordless Communication for Combat Vehicle Crewmen
- Completed Interim Vehicle Magnetic Mine Detection System
- Completed MILSTAR Traveling Wave Tube
- Completed Modular Reconnaissance Pod
- Completed Surface Ship Periscope Detection Radar

- Completed Submarine Antenna Outfit (AVxD(1))
- Continued AJU Communications Faired Mast
- Continued Chemring Chaff Block System for SOCOM Aircraft Protection
- Continued Close Air Support/All-Up Round Warhead for JSOW and CALCM
- Continued Improved Ballistic Armor Grille
- Continued Joint RAAWS Ammunition Upgrades - Phase I
- Continued Mobile Torpedo Decoy C303S for Ship Protection
- Continued Modular 5"/54 Gun System for DDG-51 Class Ships
- Continued Renaissance View Satellite Imagery
- Initiated 1.75 Watt Linear Drive Cooler
- Initiated 7.62mm Short Range Training Ammunition
- Initiated Digital Voice and Data System
- Initiated Emergency Evacuation Hyperbaric Stretcher
- Initiated F-15 Countermeasures Dispenser
- Initiated and completed F-16 600 Gallon Tanks
- Initiated Improved Mobile Subscriber Equipment UHF Radios
- Initiated Insensitive Munition Hellfire Missile Motor
- Initiated Joint RAAWS Ammunition Upgrades Phase II
- Initiated M-31 Supersonic Sea Skimming Target Missile - Extended Range
- Initiated M72 Light Anti-Tank Weapon (LAW) Insensitive Rocket Motor Propellant
- Initiated Micro-Satellite for Space Experiments
- Initiated Next Generation Small Loader
- Initiated Night Vision Goggle Camera System
- Initiated Parachute Flare Pylon for the F-16
- Initiated Remote Operating Vehicle Hot Tap and Pump System
- Initiated Standard Advanced Dewar Assembly I (SADA I)
- Initiated Castings for Affordable Fighter Structures
- Initiated Titanium Nitride Coatings for Compressor Blades

1998 Plans:

- Complete 1.75 Watt Linear Drive Cooler
- Complete 7.62mm Short Range Training Ammunition
- Complete AJU Communications Faired Mast
- Complete Atmospheric Diving Suit (Newtsuit)
- Complete Digital Voice and Data System

- Complete Improved Ballistic Armor Grille
- Complete Joint RAAWS Ammunition Upgrades, Phase I
- Complete Next Generation Small Loader
- Complete Parachute Flare Pylon for the F-16
- Complete Titanium Nitride Coatings for Compressor Blades
- Continue Castings for Affordable Fighter Structures (CAFS)
- Continue Close-Air Support/All-Up Round Warhead for JSOW and CALCM
- Continue Emergency Evacuation Hyperbaric Stretcher
- Continue F-15 Counter Measures Dispenser
- Continue Insensitive Munition Hellfire Missile Motor
- Continue Joint JRAAWS Ammunition Upgrades, Phase II
- Continue Micro-Satellite for Space Experiments
- Continue Mobile Torpedo Decoy C303S for Ship Protection
- Continue M-72 Light Anti-Tank (LAW) Insensitive Rocket Motor Propellant
- Continue NBC Analysis System
- Continue Night Vision Goggle Camera System
- Continue Standard Advanced Dewar Assembly (SADA I)
- Continue Remote Operating Vehicle Hot & Pump System
- Initiate 120mm APERS Round for M1A1/A2 Tank
- Initiate Afocal Assembly, NV80 B-Kit
- Initiate Anti-Riot Grenade
- Initiate Igniter Core for 155mm Modular Artillery Charge System
- Initiate MILSTAR Rubidium Standard
- Initiate New Generation Heater
- Initiate Patrol Coastal Decoy System
- Initiate RDX/HMX Explosives Qualification
- Initiate Scanner Assembly, NV80 B-Kit
- Initiate Solid State DC Reference Standard
- Initiate Submarine Escape and Immersion System

FY 1999 Plans:

- Fund approximately 35 new or continuing foreign system tests and evaluations and/or technology assessments.

B. (U) **PROGRAM CHANGE SUMMARY**

	FY 1997	FY 1998	FY 1999
Previous President's Budget	32,851	33,836	33,759
Appropriated Value	32,851		
Adjustments to Appropriated Value			
a. QDR & Fiscal Guidance Adj			(714)
b. Internal Adj			335
c. Congressional Adj		(1,179)	
d. Purchase Inflation Adj			(696)
Current Budget Submit	32,851	32,657	32,684

C. (U) **OTHER PROGRAM FUNDING** NA

D. (U) **SCHEDULE PROFILE** NA

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2)					February 1998				
DIRECTOR TEST AND EVALUATION, DEFENSE (0450) BUDGET ACTIVITY SIX			TEST AND EVALUATION (T&E) PE 0605804D						
$'s in Thousands	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	COST TO COMPLETE	TOTAL COST
PE 0605804D	100,132	94,350	96,253	101,810	101,716	101,925	105,628	Cont'g	Cont'g,

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

The program element supports the activities of the Director, Test, Systems Engineering, and Evaluation, Office of the Under Secretary of Defense for Acquisition and Technology (OUSD(A&T)), to manage the DoD test and evaluation process. Unique programs within this PE include Joint Test and Evaluation (JT&E) and the T&E Programs: Threat Systems (TS), Precision Guided Weapons Countermeasures (PGWCM), and the Joint Technical Coordinating Groups on Aircraft Survivability (JTCG/AS) and Munitions Effectiveness (JTCG/ME)).

JT&E programs are coordinated with OSD elements, the Joint Staff and the Services and focus on evaluating, in a joint military environment, whether weapon systems and equipment meet their detailed technical/operational performance requirements, solving technical problems, and developing T&E methodologies including those needed for validating models and simulations and/or databases. The T&E Programs are continuing efforts that provide management and oversight of DoD T&E functions and T&E expertise to the DoD. TS provides OSD policy and oversight to Service Threat Simulator developments to ensure increased commonality, minimize duplications and provide consistent validation. TS funds the management and oversight functions for development of threat specifications and threat simulators, threat representative targets used for T&E, integration of T&E requirements for Foreign Material Acquisition (FMA), and DoD validation of threat simulators, and digital threat models. PGWCM, a DoD Joint Service T&E Directorate, conducts T&E of Electro-Optical (EO), Infrared (IR), Radar, and Millimeterwave (MMW) weapons, countermeasures(CM) equipment and warning devices for the Services, T&E Agencies, and the Intelligence Community. The JTCG/AS supports joint research development test and evaluation programs to enhance the combat survivability of aircraft. This tri-Service organization serves as the DoD focal point for aircraft survivability and represents the Joint Logistics Commanders (JLC) and their Joint Aeronautical Commanders Group (JACG) in dealings with OSD, industry, and other Service agencies. JTCG/ME develops and publishes the Joint Munitions Effectiveness Manuals (JMEM) which contain weapons effectiveness estimates for all fielded non-nuclear weapons for the DoD. JMEMs are used to develop weapons requirements, plan operational missions, support training and

tactics development, and support force-level analyses. The JTCG/ME also develops and standardizes methodologies for evaluation of munitions effectiveness and maintains databases for target vulnerability, munitions lethality and weapon system accuracy. JTCG/AS and JTCG/ME jointly sponsor the Survivability/Vulnerability Information Analysis Center (SURVIAC). This PE also funds T&E Independent Activities to include independent analyses, specific and generic, of weapons systems tests and evaluation process improvements. Beginning in FY 1999, the oversight of the Major Range and Test Facility Base (MRTFB) was transferred into this PE, where, as an oversight function it belongs. At the same time, a small amount of engineering development for Threat Systems projects being accomplished in this program element was moved to CTEIP where it appropriately belongs. This resulted in a zero net change to both PEs.

DESA, a DoD T&E Activity, has provided T&E expertise to the Services, Defense Agencies, and other Departments and Agencies with DoD interests since 1990. In April 1997, the DEPSECDEF directed disestablishment of DESA and the transfer of the majority of its mission and function to the U.S. Air Force effective 30 September 1997. As part of the transition, OSD and the Air Force agreed that DTE, D will fund DESA through FY 1999. The institutional funding for DESA was removed from the DTSE&E budget over the FYDP as part of the Defense-Wide activity reductions of the Quadrennial Defense Review (QDR).

This Research Category 6.5 PE supports joint military testing of the Department's weapons systems to determine if they meet their detailed performance requirements for the Joint Staff and the Services and management of the DoD test and evaluation process.

(U) PROGRAM ACCOMPLISHMENTS AND PLANS:

FY 1997 Accomplishments:

JT&E Programs

- Completed IR Band IV CM JT&E Drone Live Fire testing.
- Continued JADS, JCSAR and JTMD testing.
- Chartered JECSIM, JSEAD, and Joint Advanced Distributed Simulation - Electronic Warfare (JADS-EW) and commence testing.
- Conducted JT&E annual nominations review.
- Completed Joint Warfighter (JWF) and Joint Night Close Air Support (JNCAS) Feasibility Studies.
- Explored with joint training officials the means by which the JT&E community can verify and validate large scale campaign/theater level simulators through use of data captured during joint training exercises.
- Chartered new JT&E programs after completion of FY 1996 JT&E Feasibility Studies.

T&E Programs

- PGWCM tested 19 EO and MMW precision guided weapons systems/related components (all U.S. Services and foreign exploitation) in a countermeasures environment (e.g. ATTAC, EWAT, LONGBOW, PGMM, BAT, SFW, C-17, AG/WSEP, ADAPT2, ADS, AIRCMM, SOCOMDIRCM, 9 Developmental missile and laser warning systems, and 5 Foreign PGW, MANPAD, and Laser systems).
- DESA continued to provide T&E expertise to the JCS, Office of the Secretary of Defense, the Services, Defense Agencies, National Level Programs, Congressionally Directed Programs, and other National Agencies. In addition, DESA became the primary assessment capability for USD(A&T) sponsored Advanced Concept Technology Demonstrations (ACTD). DESA is supporting eight ACTDs and preparing an operations manual for US Atlantic Command which standardizes the military utility assessment approach for all ACTDs. For US Central Command, DESA's planning, logistics and instrumentation for the opposing forces in Roving Sands 97 was a major factor in the success of this joint exercise.
- Threat Systems:

  Simulators
  - Continued management and oversight over Service threat simulators and threat digital models.
  - Continued threat support to T&E by investigations of current scientific and technical developments for insertion in Service threat representation programs(e.g. neural network applications, virtual simulations of threat systems, and modeling laser effects on vision).
  - Prepared a series of technical workshops to define and prioritize hybrid threat systems and determine their impact on T&E.
  - Continued support of cooperative technical research and test bed projects to facilitate threat representation (e.g. missile fly out, anti-aircraft gun and advanced aircraft models, signal analysis, missile endgames, and software re-engineering).
  - Updated and distributed the Threat Systems Handbook containing an inventory of threat representative assets (simulators, targets, and actuals) available to support T&E.
  - Executed the DoD validation program for threat simulators and threat digital models.

  Targets
  - Began Target Management Initiatives (TMI) to resolve shortfalls in common digital architecture, Target System Modeling and simulation, IR augmentation of subscale aerial targets, target survivability, target enhanced recovery, and subscale baseline vector scoring.
  - Continued management and oversight over Service threat representative targets.
  - Executed the DoD validation program for threat representative targets.
- JTCG/AS completed development of short pulse laser CM; demonstrated a radar deception and jamming technique; demonstrated a microwave power module phased array system; and completed development of a kinematic flare. Initiated a CM techniques integration study. Completed hydrodynamic ram analytical methods development. Initiated engine control and weapons bay vulnerability reduction efforts. Continued development, along with JTCG/ME, of advanced Joint Effectiveness model that will enhance

vulnerability, lethality, and end game modeling capability. Established Joint Accreditation and Support Activity to support VV&A of Service acquisition program M&S. Initiated Integrated Air Vehicle Survivability Assessment Process through workshop, requirements definition, and roadmap development.

- JTCG/ME completed two new CD/ROM versions (1.1, 1.2) of JMEM/Air-to-Surface Weaponeering System (JAWS) with expanded data and improved analysis tools; continued standardization and modernization of Air-to-Surface models; began development of a Bridge Analysis System to evaluate bridge target vulnerability; standardized methodology for aircraft lethality effectiveness and vulnerability - completed Beta Version of Advanced Joint Effectiveness Model (AJEM); completed CD-ROM Beta Version of JMEM/Surface-to-Surface World Artillery, Rocket and Mortar Systems (WAMS); and initiated development of Joint Performance Estimate Data System (JPED).

T&E Independent Activities included funding for independent analyses and T&E oversight of the more than 220 major weapon acquisition programs; the Command, Control, Communication and Intelligence (C3I); the Major Automated Systems Programs; the JT&E Programs; and travel for ODTSE&E.

FY 1998 Plans:

JT&E Programs

- Complete Band IV outbrief.
- Distribute Band IV final report.
- Continue JADS, JADS-EW, JTMD, JCSAR, JECSIM, and JSEAD testing.
- Conduct JT&E annual nominations review.
- Charter the FY 1997 Feasibility Studies, JNCAS and JWF, and commence testing.
- Determine the feasibility of FY 1997 new nominations, Joint Shipboard Helicopter Integration Process (JSHIP), Joint Theater Distribution (JTD).
- Continue to explore with joint training officials the means by which the JT&E community can verify and validate large scale campaign/theater level simulators through use of data captured during joint training exercises. Establish essential data - basis and configuration control procedures.

T&E Programs

- PGWCM will conduct 30 to 35 tests of US (ACAT I-III) and foreign guided weapons systems in a countermeasures environment, countermeasures systems, and air, sea, and land warning devices (e.g., CMWS, SIIRCM, PGMM, BAT and BAT P31, AAR-47, ATIRCM, Tactical DIRCM, AELJ, SFW and SFW P31, LANTIRN, AGM-65H, AGM-130, JSOW, FAPS, ASTE, TADIRCM, FLGB, LAIRCM, and several developmental laser beamrider CM tests).

- Priority projects and efforts initiated by DESA in prior years and transferred to the Air Force will continue. These include non-traditional T&E support to the JCS, numerous Defense and non-Defense government agencies, National Level Programs, and the Services. Greatest preponderance of effort will be centered around T&E support to DoD ACTDs and providing T&E expertise to existing and emerging Service Battle Labs.
- Threat Systems:

  Simulators
  - Complete a series of technical workshops to define and prioritize hybrid threat systems and determine their impact on T&E.
  - Continue threat support to T&E by investigations of current scientific and technical developments for use in Service threat representation programs (e.g. joint process for correlation of electronic combat test results, modeling of phased array antenna systems, and ground clutter database for simulations).
  - Continue cooperative technical research and test bed projects to facilitate threat representation (e.g. design representative beam steering units, reprogrammable digital receiver replacement for analog technology, SAM software rehosting, IR missile warning stimulator, and generic threat helicopter model).
  - Develop a Defensive Avionics System Test Simulator based on previous work involving IR guided missile warning systems.
  - Execute the DoD validation program for threat simulators and threat digital models.
  - Continue management and oversight over Service threat simulators and threat digital models.
  - Update the Threat Systems Handbook database to maintain inventory of threat representative assets available for T&E.
  - Complete design of one multispectral threat system.

  Targets
  - Continue TMI to resolve shortfalls in common digital architecture, IR augmentation of subscale aerial targets, target survivability, target enhanced recovery, and subscale baseline vector scoring.
  - Begin TMI to examine augmenting or replacing unique satellite data link for Target Control Systems, design a flight termination system for the Lance and AQM-37 targets, and validate the IR signature of current targets.
  - Continue management and oversight over Service threat representative targets.
  - Execute the DoD validation program for threat representative targets.
  - Provide OSD seed funds to prototype solution to highest priority deficiency in current target systems.
  - Continue to develop new target M&S capabilities/tools that meet multi-Service T&E needs within common/DoD standard architectures.
  - Initiate cooperative technical research to address shortfalls identified within the target validation program.
- JTCG/AS will complete imaging and missile CM developments; continue survivability evaluation of more electric aircraft components and systems; design and demonstrate coherent high power electronic attack pod; complete development of cooperative

CM techniques; and complete next generation Halon replacement evaluations for fuel system applications. Initiate CM development for next generation threat seekers and develop IRCM techniques using advanced decoys and laser IRCM. Complete engine control and decoupled fuel cell vulnerability reduction efforts. Initiate improved, lightweight transparent cockpit armor development and ullage protection systems maturation study. Develop integrated modeling environment for assessing one-on-one air weapon systems survivability. Together with JTCG/ME, complete development and Validation and Verification of crew casualty model (ORCA).

- JTCG/ME will continue conversion of existing JMEMs to CD/ROM format (i.e. JMEM/Air-to-Surface Weaponeering System (JAWS); Joint Anti-Air Combat Effectiveness (J-ACE); World Infantry and Tank Systems (WITS); and Special Operations); continue expansion of existing databases to incorporate data for newly fielded weapons (i.e. JPEDS); continue execution and technical coordination efforts to address Target Vulnerability methodology improvements; begin execution of VV&A efforts on specific JTCG/ME models; and, together with JTCG/AS, finalize AJEM methodology, begin beta testing and initiate documentation to support users and analysts.

T&E Independent Activities includes funding for independent analyses and T&E oversight of the more than 220 major weapon acquisition programs; the Command, Control, Communication and Intelligence (C3I); the Major Automated Systems Programs; the JT&E Program; and travel for ODTSE&E.

FY 1999 Plans:

JT&E Programs

- Complete JCSAR, JADS-EW, JTMD, JECSIM, and JSEAD testing.
- Distribute JCSAR, JADS-EW, JTMD, JECSIM, and JSEAD Final Reports and legacy products.
- Continue JWF, JNCAS, and JADS testing.
- Conduct JT&E annual nominations review.
- Determine the feasibility of FY 1998 new nominations for potential JT&Es.
- Charter new JT&E programs after completion of FY 1998 JT&E Feasibility Studies.

T&E Programs

- PGWCM will conduct 30 to 35 tests of US (ACAT I-III) and foreign guided weapons systems in a countermeasures environment, countermeasures systems, and air, sea, and land warning devices (ATIRCM, DIRCM, BAT, Foreign Weapons, CM and Warning Devices, LONGBOW, SFW, OWL, VIPER, Missile Warning Receivers, AAR-47 Upgrades, AELJ).
- Priority projects and efforts initiated by DESA in prior years and transferred to the Air Force will continue. These include non-traditional T&E support to the JCS, numerous Defense and non-Defense government agencies, National Level Programs, and the

Services. Greatest preponderance of effort will be centered around T&E support to DoD ACTDs and providing T&E expertise to existing and emerging Service Battle Labs.

- Threat Systems:

  Threat Simulators
  - Execute the DoD validation program for threat simulators and threat digital models.
  - Continue management and oversight over Service threat simulators and threat digital models.
  - Continue threat support to T&E by investigations of current scientific and technical developments for insertion in Service threat representation programs.
  - Continue cooperative technical research and test bed projects to facilitate threat representation.
  - Update the Threat Systems Handbook database to maintain inventory of threat representative assets available for T&E.

  Targets
  - Continue management and oversight over Service threat representative targets.
  - Execute the DoD validation program for threat representative targets.
  - Provide OSD seed funds to prototype solutions to highest priority deficiency in current target systems.
  - Continue to develop new target M&S capabilities/tools that meet multi-Service T&E needs, use common/DoD standard architectures, and make maximum use of reusable code when possible.
  - Continue cooperative technical research to address shortfalls identified within the target validation program.

- JTCG/AS will complete advanced IR signature programming and initiate composite laser vulnerability. Complete laser beamrider CM development and coherent high power electronic attack pod development. Along with JTCG/ME, complete development of component vulnerability archive incorporating methodologies, analyses and test data due to a damage mechanism. Complete qualification of survivability improvements of a more electric aircraft over a typical hydraulic system. Initiate vectored thrust nozzle and thermal energy management technology vulnerability reduction efforts. Initiate dry bay fire and explosion suppression analysis techniques. Complete engine control and weapons bay vulnerability reductions tasks. Initiate MW and CM technique to identify and counter next generation SAM and A-A missile threats.
- JTCG/ME will continue conversion of existing JMEMs to CD/ROM format; develop a transfer process for Target Vulnerability models to appropriate users in government and industry; document and continue VV&A efforts on specific JTCG/ME models; and, along with JTCG/AS, finalize AJEM documentation, publish and distribute the AJEM for DoD use, and continue collecting data for its VV&A.

T&E Independent Activities includes funding for independent analyses and T&E oversight of the more than 220 major weapon acquisition programs; the MRTFBs; the Command, Control, Communication and Intelligence (C3I); the Major Automated Systems Programs; the JT&E Programs; and travel for ODTSE&E.

B. (U) **PROGRAM CHANGE SUMMARY**

	FY 1997	FY 1998	FY 1999
Previous President's Budget	100,132	102,994	106,215
Appropriated Value	100,132		
Adjustments to Appropriated Value			
a. QDR & Fiscal Guidance Adj			(2,143)
b. Software Adj			(226)
c. T&E Support Adj			(1,400)
1. National Assessment Group (NAG)		(4,655)	(4,000)
d. Congressional Adj		(3,989)	
e. Purchase Inflation Adj			(2,193)
Current Budget Submit	100,132	94,350	96,253

C. (U) **OTHER PROGRAM FUNDING SUMMARY** NA

D. (U) **SCHEDULE PROFILE** NA

OPERATIONAL TEST AND EVALUATION, DEFENSE

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Defensewide
FY 1999 RDT&E Program

Exhibit R-1

Appropriation: 0460 D Operational Test & Evaluation, Defense

Date: FEB 1998

Line No	Program Element Number	Item	Act	Thousands of Dollars FY 1997	FY 1998	FY 1999	Sec
1	0605118D8Z	Operational Test and Evaluation	6	11,437	16,154	15,311	U
2	0605131D8Z	Live Fire Testing	6	12,782	13,640	9,934	U
		RDT&E Management Support		24,219	29,794	25,245	
Total		Operational Test & Evaluation, Defense		24,219	29,794	25,245	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) February, 1998

Appropriation:	Operational Test and Evaluation, Defense	Program Element Name:	Director of Operational Test and Evaluation
Budget Activity:	06	Program Element Number:	0605118D8Z

Cost ($ in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003
Total Program Element Cost	11.437	16.154	15.311	15,182	14.897	15.128	15.324

A. Mission Description and Budget Item Justification

The Director of Operational Test and Evaluation (DOT&E) is responsible for policy and procedures for all aspects of operational test and evaluation within the Department of Defense (DoD), with particular focus on OT&E that supports major weapon system production decisions. Currently there are approximately 200 Major Defense Acquisition Programs (MDAPs) on the DOT&E oversight list. These MDAPs may not proceed beyond low-rate initial production (LRIP) until adequate operational test and evaluation of the program is completed. This requires early involvement by DOT&E in the planning phase of each program to ensure adequate testing and satisfactory progress through the acquisition milestones toward operational effectiveness, suitability goals and full-scale production. Key elements of the DOT&E's authority for MDAPs include: the approval of Service Test and Evaluation Master Plans (TEMPs) and Service operational test and evaluation (OT&E) plans; assessment of the adequacy of OT&E and the operational effectiveness and suitability of the weapon system; and participation in DoD-wide planning, programming and budgeting activities to highlight test and evaluation capabilities, needs and priorities.

The funding increase from fiscal year (FY) 1997 to FY 1998 is due to $4.0 million provided by the Congress in the FY 1998 Defense Appropriations Act for the Operational Field Assessment (OFA) Program designed to provide responsive support to the warfighting combatant commanders. Beyond FY

1998, no funding for the OFA program is yet included in the budget. The funding decrease from FY 1998 to FY 1999 is due to the absence of funding for the OFA program, offset in part by an increase of $2.5 million in FY 1999 for implementing the Quadrennial Defense Review (QDR) in test and evaluation. Funding for implementing the QDR in T&E, which continues in the budget after FY 1999 at approximately the same level, is discussed on pages 13-14 of this exhibit.

The funding shown in this exhibit, as management support of research and development, is budgeted for in Program Element Research Category 6.5.

DOT&E also has statutory responsibility for oversight of the Live Fire Test and Evaluation Program within DoD which is budgeted for under Program Element 0605131D8Z (See Section C of this exhibit).

(U) FY 1997 Accomplishments

- Reviewed Service TEMPs and test plans and provided appropriate guidance to ensure test adequacy; observed preparation for, and conduct of, field operational (OT) tests; evaluated OT results and reported evaluations to Congress and DoD senior management; and conducted assessments on programs to include evaluation of projected resource requirements and funding levels for OT&E. Programs benefiting from this oversight included:

  Land Warfare Programs: Abrams Tank(M1A2) System Enhancement Program (SEP), Army Tactical Missile System Brilliant Anti-Armor Submunition (ATACMS/BAT), ATACMS-BAT/Pre-Planned Product Improvement(P3I), Army Tactical Missile System Block 1A, Pedestal Mounted Stinger--Avenger, Bradley Fighting Vehicle System-A3/M2A3 and M3A3 Program, Chinook (CH-47) Improved Cargo Helicopter (ICH), Close Combat Tactical Trainer (CCTT), Comanche RAH-66, CRUSADER Howitzer & Resupply Vehicle, Enhanced Fiber Optic Guided Missile (EFOG-M), Follow-on to TOW Missile System (FOTT), High Mobility Multi-Purpose Light Tactical Vehicle (HMMLTV), Improved Target Acquisition System (ITAS), Javelin Advanced Anti-Tank Weapon System, Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS), Kiowa Warrior (OH-58D), Line of Sight Anti-Tank (LOSAT) Weapon System, Longbow Hellfire Missile System, Multiple Launched Rocket System--Extended Range Rocket, Multiple Launched Rocket System (M270A1 Launcher), NBC Reconnaissance System, Palletized Loading System (PLS), Sense and Destroy Armor(SADARM), STINGER Reprogrammable Microprocessor (RMP) and Tactical Unmanned Aerial Vehicle (UAV)--Outrider.

Naval Warfare Programs: Advanced Amphibious Assault Vehicle (AAAV), Advanced Combat Direction System (ACDS) Block I, Advanced Integrated Electronic Warfare System (AIEWS), Auxiliary Dry Cargo Carrier (ADC/X), Aegis Spy Radar (AN/SPY-1B/D, EDM-4B), AN/SQQ-89 Antisubmarine Warfare Combat System, Arsenal Ship, Cooperative Engagement Capability (CEC), DDG-51 Burke Class Destroyer, Evolved Sea Sparrow Missile (ESSM), Future Sea-Based Tactical Aviation Platform (CV/X), SH-60R Multi-Mission Helicopter Program, LPD-17 Amphibious Assault Ship, Coastal Mine Hunter (MHC-51), MK48 Advanced Capability (ADCAP) Torpedo, New Attack Sub (NSSN), Phalanx Close-in Weapon System (CIWS), Rolling Airframe Missile (RAM), SC-21 21st Century Surface Combatant, Sea Sparrow (RIM-7), Ship Self-Defense System (SSDS), Smart Ship Technology, SSN-21/BSY-2 Seawolf Class Nuclear Attack Submarine/Combat System, Strategic Sealift Ship (SSP), Standard Missile-2/IIIB-IV/IVA, Submarine External Communications System (SubECS), and TAGOS/SURTASS Surveillance Ship.

Air Warfare Programs: AH-1 and UH-1 Helicopter Upgrades (4BN/4BW Upgrade), AIM-9X Missile, Advanced Medium Range Air-to-Air Missile (AMRAAM), C-17 Airlift Aircraft, C-130J Cargo Plane, F-14D Fighter, F/A-18 C/D Hornet, F/A-18 E/F Hornet, F-22 Air Superiority Fighter, Joint Air-to-Surface Strike Missile (JASSM), Joint Combat Search and Rescue (JCSAR), Joint Direct Attack Munition (JDAM), Joint Primary Aircraft Training System (JPATS), Joint Standoff Weapon (JSOW), Joint Strike Fighter, Joint Surveillance and Target Attack Radar System (JSTARS) E-8, Medium Altitude Endurance (Predator), Global Hawk High Altitude Endurance Vehicle, Dark Star Low Observables High Altitude Endurance Unmanned Aerial Vehicle, Sensor Fused Weapon (SFW), Standoff Land Attack Missile—Expanded Response (SLAM-ER), Tactical Aviation Mission Planning System (TAMPS), T-45 Training System, and V-22 Osprey (Joint Vertical Airlift).

Electronic Warfare Programs: ALE-50 Electronic Warfare Countermeasure System, ALR-67(V)3/4 Advanced Special Receiver, ALR-69 Radar Warning Receiver, B-1B Bomber Defensive System Upgrade Program, EA-6B Tactical Jamming System (All Upgrades), F-15 Tactical Electronic Warfare System (TEWS), Integrated Defensive Electronic Countermeasures Suite (IDECM), Suite of Integrated Infrared Countermeasures/Common Missile Warning System (SIIRCM/CMWS), and Suite of Integrated Radio Frequency Countermeasures (SIRFCM).

Command, Control, Communications and Intelligence (C3I) Programs: All Source Analysis System (ASAS), Army Global Command and Control System (AGCCS), Army Tactical Command and Control System (ATCCS) Capstone, Base Level System Modernization Phase II (BLSM II), Battlefield Digitization, Broad Area Coverage Image Capability (BACIC), C2 Vehicle, Cheyenne Mountain Upgrade, Combat ID, Composite Health Care System (CHCS), Consolidated Space Operations Center (CSOC), Defense Civilian Personnel Data System (DCPDS), Defense

Commissary Info System, Defense Medical Logistics Standard Support (DMLSS), Defense Message System (DMS), Defense Commissary Point-of-Sale (POS) System, Defense Fuel Automated Management System (DFAMS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP)/EWS, Depot Maintenance Support System (DMSS), Digital Production System (DPS), Distribution Standard System (DSS), E-2C Hawkeye Airborne Early Warning, E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RSIP), E-6A TACAMO (multiple subprograms), F-15 Fighter Data Link, Forward Area Air Defense System (FAADS) C3I, Global Transportation Network (GTN), High Performance Computing Modification Plan (HPCMP), Integrated Maintenance Data System (IMDS), Joint Computer Aided Acquisition and Logistic Support (JCALS), Joint Engineering Data Management and Control System (JEDMCS/EDMCS), Joint Receiving Information Support System, Joint Service Imagery Processing System (JSIPS), Joint Tactical Information Distribution System (JTIDS), Maneuver Control System (MCS), Material Management Support System (MMSS), Multifunctional Information Distribution System (MIDS), MILSTAR Satellite Communications System, NAVSTAR GPS User Equipment (UE), Navy Standard Integrated Personnel System (NSIPS), Non-Tactical Command Support System (NTCSS), Reserve Component Automation System (RCAS), Space Based Infrared System (SBIS), Standard Installation/ Division Personnel System 3 (SIDPERS3), Standard Procurement System (SPS), Strategic War Planning System (SWPS), Theater Medical Information Program (TMIP), Ultra-High Frequency Follow-On (UFO) Satellite, and Unit Level Logistic System (ULLS).

Strategic Warfare and Space Systems Programs: B-1B Lancer, B-2 Advanced Technology Bomber, Block IV All-Up-Round, Theater Missile Defense (BM/C3), Corps Surface-to-Air Missile (SAM), Evolved Expendable Launch Vehicle (EELV), National Airspace System (NAS), National Missile Defense System (NMDS), Navy Theater Ballistic Missile Defense (TBMD), Patriot P3I, Patriot Upgrade, Theater High Altitude Area Defense (THAAD), TITAN IV Space Booster, Tomahawk Block IV, and Tomahawk Theater Mission Planning Center (TMPC).

Other Systems: Chemical Demilitarization.

- Performed official travel to carry out DOT&E programmatic oversight of DoD operational testing and evaluation.

(U) FY 1998 Plans:

• Review Service TEMPs and test plans and provide appropriate guidance to ensure test adequacy; observe preparation for, and conduct of, field operational tests; evaluate OT results and report evaluations to Congress and DoD senior management; and conduct assessments on programs to include evaluation of projected resource requirements and funding levels for OT&E. Programs benefiting from this oversight service will include:

Land Warfare Programs: Abrams Tank (M1A2) System Enhancement Program (SEP), Army Tactical Missile System Brilliant Anti-Armor Submunition (ATACMS/BAT), ATACMS-BAT/Pre-Planned Product Improvement (P3I), Bradley Fighting Vehicle System (BFVS)-A3/M2A3 and M3A3 Program, Chinook (CH-47) Improved Cargo Helicopter (ICH), Close Combat Tactical Trainer (CCTT), Comanche RAH-66, CRUSADER Howitzer & Resupply Vehicle, Enhanced Fiber Optic Guided Missile (EFOG-M), Follow-on to TOW Missile System (FOTT), High Mobility Multi-Purpose Light Tactical Vehicle (HMMLTV), Improved Target Acquisition System (ITAS), Javelin Advanced Anti-Tank Weapon System, Joint Surveillance Target Attack Radar System (JSTARS) Common Ground Station (CGS), Kiowa Warrior (OH-58D), Line of Sight Anti-Tank (LOSAT) Weapon System, Longbow Hellfire Missile System, Multiple Launched Rocket System--Extended Range Rocket (MLRS-ERR), Multiple Launched Rocket System (M270A1 Launcher), NBC Reconnaissance System, Sense and Destroy Armor (SADARM), Stinger Reprogrammable Microprocessor (RMP) and Tactical Unmanned Aerial Vehicle (UAV)--Outrider.

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Other Systems: Chemical Demilitarization.

Operational Field Assessment Program: The FY1998 Defense Appropriations Act provided $4.0 million for operational field assessments (OFAs). The Commanders-in-Chief (CINCs) Operational Field Assessment program was established in FY1997 as a proof-of-principle effort to support the warfighting CINCs with improved experimental and realistic operational and intelligence assessment capabilities. The OFA Program's objective is to support the CINCs in exploring operational concepts and addressing critical operational issues in a quick response mode (i.e., weeks or months versus years). The OFA Program gives the CINCs a quick response capability to address near-term operational issues as they arise. OFAs are designed to address adaptations of an existing system for a particular CINC mission, to better understand the capabilities of an existing system against new or unusual threats, or to address employment options which maximize the capabilities of U.S. military equipment.

By the end of FY1997, eight OFAs were completed or on-going in support of six Unified Commands: US Atlantic Command (USACOM), US Central Command (USCENTCOM), US European Command (USEUCOM), US Special Operations Command (USSOCOM), US Southern Command (USSOUTHCOM), and US Transportation Command (USTRANSCOM). The OFAs were far-ranging in discipline and produced significant findings for the Unified Commands, OFA partners and Service participants. The following FY 1997 assessments were conducted:

(1) In support of USEUCOM and USCENTCOM, a Ground-Controlled Interceptor Surface-to-Air (GCI-SAM) OFA was conducted. Currently existing" off-the-shelf" operational and intelligence data was inadequate to answer operational questions. Phase I, conducted at McGregor Range at Fort Bliss, Texas, involved radars and surface-to-air missile systems operating in a non-traditional way to increase effectiveness against U.S. fixed and rotary wing aircraft. The assessment was highly successful and demonstrated the ability to quickly support the CINCs with flexible and coordinated intelligence and operational capabilities. Phase II, conducted at Ft Bliss and at Nellis AFB, Nevada, had the primary objective of electronically integrating the hybrid and this was effectively demonstrated in realistic scenarios. Significant additional findings resulted from the collection and processing efforts of overhead and airborne collectors.

(2) In support of USTRANSCOM's expanded mission and involvement in Military Operations Other Than War (MOOTW), an OFA was conducted, "Live Fire Characterization (LFC) for Small Arms, Anti-Aircraft Artillery (AAA) and Surface-to Air Missiles (SAMs) From a Pilot's Perspective". TRANSCOM's involvement in MOOTW has drastically increased the need for U.S. aircrews to distinguish between different types/caliber of AAA and ground fire (i.e. artillery, Man-Portable Air Defense Systems [MANPADS], automatic weapons, etc.) as seen from a pilots perspective. Results of this OFA will be used to increase aircrew knowledge of AAA/MANPAD signature and characteristics; it can also be used by aircrews to identify potential threats in order to employ the proper evasive tactics. In addition, a cost-saving enhanced computer simulation was produced which will allow the aircrew the opportunity to tailor the simulation in order to enhance terrain, weather, and the environment so as to visualize and prepare for each specific mission. TRANSCOM, as well as other commands, will now be able to fully develop tactics and evasive maneuvers to counter the threat prior to the launching of each sortie.

(3) The Semi-Automated Imagery Program (SAIP) is managed by US Atlantic Command (USACOM). Successful early fielding of the SAIP tools will provide an intelligence and operations interface that should greatly enhance warfighter capabilities. The OFA program provided awareness of, and access to, actual threat equipment and a FY 1998 USCENTCOM Integrated Air Defense OFA will provide critical operational military utility assessments. Other USACOM programs, such as the Combat Identification, have similar assessment requirements and shortfalls.

(4) The Distributed Joint Special Operations Task Force Initiative OFA within Exercise ROVING SANDS 97 was accomplished from April 20-25, 1997. The proposal articulated the desire to assess an innovative aggregation of systems to allow distributed real-time Special Operations Forces mission planning, analysis, rehearsal, and operational execution using existing service mission planning computers and developmental software This OFA demonstrated the power and flexibility of the concept and process. The assessment results identified hardware, software, and operator training issues and lessons. These issues and lessons have enabled USSOCOM and the Service SOF components to capture specific training actions and system modifications that will result in clear multi-service requirements and capabilities for interactive SOF mission planning systems. As a result of this OFA, the joint warfighting commands and the service components now have a strategy mapped out to move forward toward development of a computer-based distributed planning system that responds to the unique needs of world-wide deployed special operations forces.

(5) Four OFAs were initiated with USSOUTHCOM during FY 1997. These OFAs are designed to examine operational issues and technologies specifically related to the USSOUTHCOM mission. OFAs provide a means to rapidly address in a focused, low cost manner capabilities and concepts of operations which are not addressed by other programs. These OFAs were:

(a) Assessment of the operational feasibility of extended range surveillance by Relocatable Over-the-Horizon-Radar (ROTHR). This OFA is designed to determine the capabilities of ROTHR to detect and track aerial targets at ranges beyond its current operating range. This capability has a significant operational potential for expanding and improving surveillance of air routes in USSOUTHCOM's area of responsibility.

(b) Assessment of USSOUTHCOM's joint and combined exercise planning and execution processes. The objectives of this OFA were to assist the CINC in assessing USSOUTHCOM's joint and combined exercise planning and execution process, to develop exercise lessons learned, and to suggest to the CINC areas where exercise processes may be improved Three different USSOUTHCOM exercises are being followed as a basis for assessment.

(c) Assessment of the APS-144 podded radar to enhance aerial interception by aircraft not otherwise equipped with intercept radar. Initial engineering development and flight testing of the podded radar were conducted in Summer, 1997.

(d) Assessment of the "Silent Vision" multi-sensor platform for detection of concealed targets. An evaluation concept for "Silent Vision" has been developed , with execution based upon availability of funding for this platform. The OFAs with USSOUTHCOM offer an effective way to address specific operational issues which would be unlikely to be addressed by another program.

The FY 1997 OFAs were conducted at five separate range facilities and were supported by Army, Navy, Marine and Air Force equipment and personnel, active and reserve. The Unified Commands were uniformly positive in their response to the information provided by the OFAs and supportive of the program. OFAs completed thus far, as well as FY 1998 identified requirements, indicate a need to conduct operational assessments. The proof of concept phase was highly successful and demonstrated the ability to quickly support the CINCs with flexible and coordinated operational, intelligence and test and evaluation capabilities. Approximately $2.745 million in total was spent on the OFA program during FY 1997.

For FY 1998 the OFA partners received 50 requests for OFAs and are considering thirty one (31) that are well within the mission areas of the OFA partners. This determination was done quickly and many of the OFA requirements could have been initiated during 1st quarter FY 1998 if funds hd been available. One valuable lesson has been that - different commands share the same information needs. These common OFA requirements will allow the partners to develop a unique synergism in order to better support the warfighter during periods of conflict.

In providing $4.0 million in FY 1998 for the OFA program, the Appropriations conferees directed that a review be conducted of all aspects of operational field assessments--by the Director for Force Structure, Resources and Assessment (J-8) of the Joint Staff--and that a report be provided to the Committees on Appropriations by March 30, 1998. The conferees further directed that, until the report is provided to Congress, the funds provided for operational field assessments shall not be obligated. It will be important that the report be delivered on schedule and funding become available to continue conducting OFAs in support of CINCs requirements. The FY 1998 projects will help the Unified Command Commanders in Chiefs (CINCs) in a variety of areas: the war on drugs (SOUTHCOM), land mine detection (EUCOM), integrated air defense and mobile missile detection (CENTCOM), and under ground facility detection (US Forces Korea) to name a few.

• Perform official travel to carry out DOT&E programmatic oversight of DoD operational testing and evaluation.

(U) FY 1999 Plans:

• Review Service TEMPs and test plans and provide appropriate guidance to ensure test adequacy; observe preparation for, and conduct of, field operational tests; evaluate OT results and report evaluations to Congress and DoD senior management; and conduct assessments on programs to include evaluation of projected resource requirements and funding levels for OT&E. Programs benefiting from this oversight service will include:

Land Warfare Programs: Abrams Tank (M1A2) System Enhancement Program (SEP), Army Tactical Missile System Brilliant Anti-Armor Submunition (ATACMS/BAT), ATACMS-BAT/Pre-Planned Product Improvement (P3I), Bradley Fighting Vehicle System (BFVS)-A3/M2A3 and M3A3 Program, Chinook (CH-47) Improved Cargo Helicopter (ICH), Close Combat Tactical Trainer (CCTT), Comanche RAH-66, CRUSADER Howitzer & Resupply Vehicle, Enhanced Fiber Optic Guided Missile (EFOG-M), Follow-on to TOW Missile System (FOTT), High Mobility Multi-Purpose Light Tactical Vehicle (HMMLTV), Improved Target Acquisition System (ITAS), Javelin Advanced Anti-Tank Weapon System, Kiowa Warrior (OH-58D), Line of Sight Anti-Tank (LOSAT) Weapon System, Longbow Hellfire Missile System, Multiple Launched Rocket System--Improved Fire Control System (MLRS-IFCS), Sense and Destroy Armor (SADARM), Stinger Reprogrammable Microprocessor (RMP), and Tactical Unmanned Aerial Vehicle (UAV)--Outrider.

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Air Warfare Programs: AH-1 and UH-1 Helicopter Upgrades (4BN/4BW Upgrade), AIM-9X Missile, Advanced Medium Range Air-to-Air Missile (AMRAAM), C-17 Airlift Aircraft, C-130J Cargo Plane, F/A-18 C/D Hornet, F/A-18 E/F Hornet, F-22 Air Superiority Fighter, Joint Advanced Strike Technology (JAST), Joint Air-to-Surface Strike Missile (JASSM), Joint Direct Attack Munition (JDAM), Joint Primary Aircraft Training System (JPATS), Joint Standoff Weapon (JSOW), Joint Strike Fighter (JSF), Joint Surveillance and Target

Attack Radar System (JSTARS) E-8, JT-UAV High Altitude Endurance (Global Hawk), Dark Star Low Observables High Altitude Endurance Unmanned Aerial Vehicle, Global Hawk Conventional High Altitude Endurance UAV, Sensor Fused Weapon (SFW), Standoff Land Attack Missile--Expanded Response (SLAM-ER), Tactical Aviation Mission Planning System (TAMPS), T-45 Training System, and V-22 Osprey (Joint Vertical Airlift).

Electronic Warfare Programs: ALR-67(V)3/4 Advanced Special Radar, B-1B Bomber Defensive System Upgrade Program, EA-6B Tactical Jamming System (All Upgrades), F-15 Tactical Electronic Warfare System (TEWS), Integrated Defensive Electronic Countermeasures Suite (IDECM), Suite of Integrated Infrared Countermeasures/ Common Missile Warning System (SIIRCM/CMWS), and Suite of Integrated Radio Frequency Countermeasures(SIRFC).

Command, Control, Communications and Intelligence (C3I) Programs: All Source Analysis System (ASAS), Army Global Command and Control System (AGCCS), Army Tactical Command and Control System (ATCCS) Capstone, Base Level System Modernization Phase II (BLSM II), Battlefield Digitization, Broad Area Coverage Image Capability (BACIC), C2 Vehicle, Cheyenne Mountain Upgrade, Combat ID, Composite Health Care System (CHCS), Consolidated Space Operations Center (CSOC), Defense Civilian Personnel Data System (DCPDS), Defense Commissary Info System, Defense Medical Logistics Standard Support (DMLSS), Defense Message System (DMS), Defense Commissary Point-of-Sale (POS) System, Defense Fuel Automated Management System (DFAMS), Defense Satellite Communications System (DSCS), Defense Support Program (DSP)/EWS, Depot Maintenance Support System (DMSS), Digital Production System (DPS), Distribution Standard System (DSS), E-2C Hawkeye Airborne Early Warning, E-3A Airborne Warning and Control System (AWACS) Radar System Improvement Program (RSIP), E-6A TACAMO (multiple subprograms), F-15 Fighter Data Link, Forward Area Air Defense System (FAADS) C3I, Global Transportation Network (GTN), High Performance Computing Modification Plan (HPCMP), Integrated Maintenance Data System (IMDS), Joint Computer Aided Acquisition and Logistic Support (JCALS), Joint Engineering Data Management and Control System (JEDMCS/EDMCS), Joint Receiving Information Support System, Joint Service Imagery Processing System (JSIPS), Joint Tactical Information Distribution System (JTIDS), Maneuver Control System (MCS), Material Management Support System (MMSS), Multifunctional Information Distribution System (MIDS), MILSTAR Satellite Communications System, NAVSTAR GPS User Equipment (UE), Navy Standard Integrated Personnel System (NSIPS), Non-Tactical Command Support System (NTCSS), Reserve Component Automation System (RCAS), Space Based Infrared System (SBIS), Standard Installation/ Division Personnel System 3 (SIDPERS3), Standard Procurement System (SPS), Strategic War Planning System (SWPS), Theater Medical Information Program (TMIP), Ultra-High Frequency Follow-On (UFO) Satellite, and Unit Level Logistic System (ULLS).

Strategic Warfare and Space Systems Programs: B-1B Lancer, B-2 Advanced Technology Bomber, Theater Missile Defense (BM/C3), Corps Surface-to-Air Missile (SAM), Evolved Expendable Launch Vehicle (EELV), National Airspace System (NAS), National Missile Defense System (NMDS), Patriot P3I, Patriot Upgrade, Navy Theater Ballistic Missile Defense (TBMD), Theater High Altitude Area Defense (THAAD), TITAN IV Space Booster, Tomahawk Block IV, and Tomahawk Theater Missile Planning Center (TMPC).

Other Systems: Chemical Demilitarization.

Implementing the Quadrennial Defense Review (QDR) in Test and Evaluation: This program element was increased by $2.5 million in FY 1999 by the DoD Program Decision Memorandum (PDM) issued in November, 1997, following the annual DoD Program Review. These funds will be needed by DOT&E for implementing the QDR in test and evaluation. The funding will be for additional technical and analytical support for evaluation of operational testing of (1) U.S. capabilities to deploy National Missile Defense (NMD), (2) new initiatives in Battlefield Digitization (BD), and (3) Chemical and Biological Warfare (CBW) defenses.

The Quadrennial Defense Review (QDR) declared that development of U.S. capabilities to deploy a National Missile Defense (NMD) is a national priority. The NMD program encompasses a new and critical mission area where the most advanced technology will need to function near-flawlessly. The non-traditional development and acquisition approach for NMD significantly increases the evaluation and analysis workload for DOT&E. This non-traditional approach and the number of new component systems to be developed for NMD will require a quantum increase in DOT&E evaluation and oversight responsibilities. That increased activity is needed to assure that each NMD component system satisfies its test objectives while delivering, on schedule, a capability to counter the anticipated threat.

The new initiatives that comprise the Battlefield Digitization (BD) program support the Chairman of the Joint Chiefs of Staff's "Joint Vision 2010". BD is a massive multi-billion dollar command, control, communications and intelligence (C3I) program that directly impacts and affects how the entire Army fights. It will have extraordinary impact on every major dismounted, ground, and airborne platform in the Army's inventory. Using computer systems, BD is designed to integrate digital communications and information management technologies into all such platforms and systems. This will be accomplished using both existing and developmental computers and communications systems

which will be expected to fully interoperate and interface with each other across both tactical and strategic echelons and formations - all highly critical functions for the reliable and timely extension of command-and-control down to the lowest possible echelon. Consequently, the expected improvement via BD in situational awareness and the use of its communications-electronics to transmit and receive orders, plans, reports, and graphic overlay is expected to greatly increase the Army warfighter's abilities in the areas of force effectiveness, lethality, survivability, and operating tempo (OPTEMPO). Also, BD is an exceptionally complex and all-encompassing C3I program that the Army plans to incorporate in its First Digitized Division (FDD) in the year 2000 and, subsequently, field to all of its major formations soon after its fielding to the FDD. This makes it imperative that DOT&E be provided the resources required to ensure that necessary and adequate operational test and evaluation (OT&E) will be accomplished to support BD's very ambitious and complex acquisition strategy.

The QDR identified Chemical and Biological Warfare (CBW) by potential adversaries, using unconventional approaches, as one of the key areas of future threat to U.S. military forces. U.S. forces must be properly equipped and trained to operate effectively and decisively in the face of CBW attacks. In pursuit of these goals, DoD has increased planned spending on CBW defense activities by approximately $1 billion over the program period. To ensure that the systems developed by these programs are ready for use by our servicemen and servicewomen when they are fielded, DOT&E must play a key role in assuring that these systems are operationally effective and suitable. DOT&E's monitoring and assessment of the test and evaluation programs of each of these systems, as they are developed, will require extensive research into the current state of chemical and biological warfare agent detection and identification, with special emphasis on operational testing of this equipment by troops in the field---including tactics, techniques and procedures used by soldiers to operate, maintain and report the results of use of this equipment.

- Perform official travel to carry out oversight of DoD operational testing and evaluation.

Program Change Summary

	FY1997	FY1998	FY1999	Total Program
Previous President's Budget	11.437	13.187	13.216	NA
Appropriated Value	11.437	17.187	13.216	NA
Adjustments to Appropriated Value				NA
a. FY 1999-2003 DoD Fiscal Guidance			-.282	
b. Congressional Actions		-.560		
(1) FFRDC Reduction (Sect. 8035)		-.258		
(2) 1.5% Reduction (Sect. 8043)		-.215		
(3) RDT&E Reduction (Sect. 8048)				
c. Implementation of QDR in Test & Evaluation			+2.500	
d. Reduction in Nonpay Purchases Inflation			-.123	
Current Budget Submit/President's Budget	11.437	16.154	15.311	NA

C. Other Program Funding Summary

Since the passage of the Federal Acquisition Streamlining Act of 1994, DOT&E has had responsibility within the Office of the Secretary of Defense for monitoring and reviewing the live fire test and evaluation (LFT&E) activities of the Department of Defense. In the FY 1997 DoD Appropriations Act, Congress added $3.0 million for "Alternative Uses of Simulation and Training Technologies". Thus, the current budgeted funding for live fire test oversight is:

Program Element 0605131D8Z Live Fire Test and Evaluation

Cost (in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003
Total Program Element Cost	12.782	13.640	9.934	10.352	10.331	10.525	10.696

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	FY1997				FY1998				FY1999			
	1	2	3	4	1	2	3	4	1	2	3	4
Contract Milestones:	(See activities under Part A above.)											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) February, 1998

Appropriation:	Operational Test and Evaluation, Defense	Program Element Name:	Live Fire Test
Budget Activity:	06	Program Element Number:	0605131D8Z

Cost (in Millions)	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003
Total Program Element Cost	12.782	13.640	9.934	10.352	10.331	10.525	10.696

A. Mission Description and Budget Item Justification

This program element, 0605131D8Z, directly supports the Congressional statutory requirements for oversight of Live Fire Test and Evaluation (LFT&E). The Federal Acquisition Streamlining Act of 1994 amended Title 10 to transfer, within the Office of the Secretary of Defense, responsibility for monitoring and reviewing the live fire testing activities of the Department of Defense. Responsibility was reassigned from the Director of Test, Systems, Engineering & Evaluation, Office of the Under Secretary of Defense (Acquisition and Technology), to the Director of Operational Test and Evaluation (DOT&E) in FY 1995.

The primary objective of LFT&E is to assure that the vulnerability of DoD crew-carrying weapons platforms and the lethality of our conventional munitions are known and acceptable before entering full-rate production. LFT&E encompasses realistic tests involving actual U.S. and threat hardware or, if not available, acceptable surrogate threat hardware. The objective is to identify and correct design deficiencies early in the development process, and is required to be completed before weapons proceed beyond low-rate initial production (LRIP). This program is essential, especially in view of the escalating costs of technologically-sophisticated weapons systems.

The LFT&E program element also supports the DoD's Joint Live Fire (JLF) program which began in 1984 under a limited charter to test field "first line air-to-ground attack aircraft" and to

test "the lethality of major caliber anti-armor munitions against first line armored vehicles. When the Congress passed Title 10, U.S. Code, Section 2366, which set forth specific requirements for the LFT&E of systems under development, it appeared that the earlier JLF program might be phased out as newer, tested systems replaced the older systems. This has not worked out as envisioned because:

- some systems not included in the original program will not be retired as early as planned, continuing in service well into the next century.
- later models of the initial systems have entered service and have not been tested.
- systems now face new threat environments that could not have been anticipated at the time the original program was envisioned.
- some development programs (e.g., F-117 and ships) have had limited or no LFT&E programs because of programmatic constraints.

In the FY 1997 DoD Appropriations Act, the Congress appropriated an initial $3.0 million for the Live Fire Test and Training (LFT&T) program, formalizing an important LFT&E program relationship. The funding strengthens the natural relationship between live fire testing and the models and simulations being developed to support the Services' testing and training activities. The LFT&T program is directed by a Senior Advisory Group consisting of DOT&E's Deputy Director for Live Fire Test (Chair) and the four Military Service leaders for training technology located in Orlando, Florida. For FY 1998, the Congress appropriated $4.0 million for continuation of the program. Beyond FY 1998, no funding for the Test and Training program is yet included in the budget.

The LFT&E program element also funds other activities used to support the functions of the LFT&E, JLF and LFT&T programs. The other activities, outlined below, are "Crew Casualty Assessment", "Exploring New Technologies/Advanced Concepts and Survivability Initiatives", and "Assuming Modeling and Simulation". Efforts in those categories are undergoing significant changes during FYs 1997, 1998 and 1999 as emphasis is being switched from OFA in FY 1997 to modeling and simulation in support of LFT&E in FY 1998 and FY 1999.

LFT&E funding is part of management support of research and development, as well as R&D of fielded systems, and therefore budgeted in Program Element Research Category 6.5.

(U) FY 1997 Accomplishments

COMPLETED:

Review and Monitor Major T&E Programs: Completed development of the LFT&E strategies for the F-22 aircraft, M1 Breacher (Grizzly), M1 HAB (Wolverine), M2A3 (Bradley), M993 and M995 armor piercing cartridge, and Sensor Fuzed Weapon. Reviewed test plans for all test programs currently in the execution phase. Completed LFT&E Report for the Javelin antitank weapon.

Review and Monitor Joint Live Fire Programs: Completed testing on the static and dynamic vulnerability of AH-1S helicopter engines and transmissions. Completed assessment of battle damage and repair techniques on AH-1S rotor blades as well as engines and transmissions. Continued testing of classified targets and threats. Also conducted study on the comparison of state-of-the-art model predictions with observed test results. Provided helicopter damage predictions and aerodynamic effects of damage for AH-1S helicopter engine and transmission testing. All other projects, including all fixed-wing programs, were canceled to fund Operational Field Assessments.

Crew Casualty Assessment: None. All projects except continued development of a project, "Transition of a Combined Toxic Gas Lethality Model to an Injury Model", were canceled in FY 1997 for higher priority requirements.

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Conducted the first-ever open-air demonstration of High Powered Microwave (HPM) threat technologies used against actual operational aircraft (AH-1S Cobra) and other classified targets. This demonstration received significant attention at the Congressional level and from the HPM technology community.

Assuring Modeling & Simulation Adequacy: Completed work on model describing microwave vulnerability of helicopters. Documentation of results will be available in FY 1998.

Live Fire Test and Training: Selected and funded five projects that transition simulation and modeling technologies between the live fire test and evaluation community and the military training communities. The projects include small arms effectiveness, human patient modeling, combat mobility criteria, visual target modeling and synthetic environment support for live fire test of ground vehicles. Established a process for the solicitation, evaluation and selection of applicable projects for funding in FY 1998. Completed solicitation phase that resulted in receipt of 72 proposed projects for funding consideration for FY 1998. Sponsored a two-day Training Systems Technology Applications Exhibit at the Pentagon.

Operational Field Assessment Program: The FY 1997 Appropriations Act authorized DOT&E to internally reprogram and spend up to $3.0 million from this program element account for operational field assessments (OFAs). The Director Operational Test & Evaluation (DOT&E) in partnership with the Director, Defense Intelligence Agency (DIA), the Director, National Security Agency (NSA), and the Director, National Reconnaissance Office (NRO) collectively concluded that they could cooperatively provide enhanced support to the Warfighting CINCs and the Joint Chiefs of Staff (JCS) through operational field assessments. The CINCs currently have no dedicated resources to address operational field experiments and the OFA program affords the CINCs the ability to assess new operational concepts against a full range of joint and service warfighting capabilities to develop new joint doctrine. DOT&E is the Executive Agent and DoD sponsor for the OFA partnership.

By the end of FY 1997, eight assessments were completed or on-going in support of six Unified Commands: US Atlantic Command (USACOM), US Central Command (USCENTCOM), US European Command (USEUCOM), US Special Operations Command (USSOCOM), US Southern Command (USSOUTHCOM), and US Transportation Command (USTRANSCOM). The OFAs were far-ranging in discipline and produced significant findings for the Unified Commands, OFA partners and Service participants. The following FY 1997 assessments were conducted:

[1] In support of USEUCOM and USCENTCOM, a Ground-Controlled Interceptor-Surface to Air (GCI-SAM) OFA was conducted. Phase I, conducted at McGregor Range at Fort Bliss, Texas, involved radars and surface-to-air missile systems operating in a non-traditional way to increase effectiveness against U.S. fixed and rotary wing aircraft. The event was highly successful and demonstrated the ability to quickly support the CINCs with flexible and coordinated intelligence and operational capabilities. Phase II, conducted at Ft Bliss and at Nellis AFB, Nevada, had the primary objective of electronically integrating the hybrid which was effectively demonstrated in realistic scenarios. Significant additional findings resulted from the collection and processing efforts of overhead and airborne collectors.

[2] In support of USTRANSCOM's expanded mission and involvement in Military Operations Other Than War (MOOTW), an OFA was conducted, "Live Fire Characterization (LFC) for Small Arms, Anti-Aircraft Artillery (AAA) and Surface-to-Air Missiles (SAMs) From a Pilot's Perspective". TRANSCOM's involvement in MOOTW drastically increased the need for U.S. aircrews to distinguish between different types/caliber of AAA and ground fire (i.e. Artillery, man-portable air defense systems [MANPADS], Automatic Weapons, etc.) as seen from a pilots perspective. Results of this assessment will be used to increase aircrew knowledge of AAA/MANPAD signature and characteristics; it can also be used by aircrews to identify potential threats in order to employ the proper evasive tactics.

[3] The Semi-Automated Imagery Program (SAIP) is managed by US Atlantic Command (USACOM). Successful early fielding of the SAIP tools will provide an intelligence and operations interface that should greatly enhance warfighter capabilities. The OFA program provided awareness of, and access to, actual threat equipment and a FY 1998 USCENTCOM Integrated Air Defense OFA will provide critical operational military utility assessments.

[4] The Distributed Joint Special Operations Task Force Initiative OFA within Exercise ROVING SANDS 97 was accomplished from April 20-25, 1997. The CINC proposal articulated the need to assess an innovative aggregation of systems to allow distributed real-time SOF mission planning, analysis, rehearsal, and operational execution using existing service mission planning computers and developmental software. As a result of the OFA, the joint warfighting commands and the service components now have a strategy mapped out to move forward toward development of a computer-based distributed planning system that responds to the unique needs of world-wide deployed special operations forces.

[5] Four OFAs were initiated with USSOUTHCOM during FY97. These OFAs are designed to examine operational issues and technologies specifically related to the USSOUTHCOM mission. The OFAs provided a means to rapidly address, in a focused, low-cost manner, capabilities and concepts of operations which were not being addressed by other programs. These OFAs were:

(a) Assessment of the operational feasibility of extended range surveillance by Relocatable Over-the-Horizon Radar (ROTHR). This OFA is designed to determine the capabilities of ROTHR to detect and track aerial targets at ranges beyond its current operating range. This capability has a significant operational potential for expanding and improving surveillance of air routes in USSOUTHCOM's AOR.

(b) Assessment of USSOUTHCOM's joint and combined exercise planning and execution processes. The objectives of this OFA were to assist the CINC in assessing USSOUTHCOM's joint and combined exercise planning and execution process, to develop exercise lessons learned, and to suggest to the CINC areas where exercise processes may be improved Three different USSOUTHCOM exercises are being followed as a basis for assessment.

(c) Assessment of the APS-144 podded radar to enhance aerial interception by aircraft not otherwise equipped with intercept radar. Initial engineering development and flight testing of the podded radar were conducted in Summer, 1997.

(d) Assessment of the "Silent Vision" multi-sensor platform for detection of concealed targets. An evaluation concept for "Silent Vision" has been developed, with execution based upon availability of funding for this platform.

The FY 1997 OFAs were conducted at five separate range facilities and were supported by Army, Navy, Marine and Air Force equipment and personnel, active and reserve. The Unified Commands were uniformly positive in their response to the information provided by the OFAs and supportive of the program. This proof-of-concept phase was highly successful and demonstrated the ability to quickly support the CINCs with flexible and coordinated operational, intelligence and test and evaluation capabilities.

In total, during FY 1997, approximately $2.745 million was spent on the OFA program. For FY 1998, Congress provided an additional $4.0 million for the OFA program but placed the funds in DOT&E's other program element (0605118D8Z, Director of Operational Test and Evaluation) for continuation of the program. Further information on the OFA program in FY 1998 is contained in the R-2 exhibit for that program element.

ONGOING:

Review and Monitor Major T&E Programs: Provided oversight on the vulnerability LFT&E of: the Advanced Amphibious Assault Vehicle, Command and Control Vehicle, Crusader Advanced Field Artillery System, Grizzly Breacher, Light Tactical Vehicle, M1A2-FY2000 Abrams Upgrade, M2A3 Bradley Fighting Vehicle System, Wolverine Assault Bridge, Line-of-Sight Anti-Tank(LOSAT), AH-1W Helicopter Upgrade, UH-1N Helicopter Upgrade, B-1B Lancer, B-2 Spirit Aircraft, F-22 Air Superiority Fighter, F/A-18E/F Hornet, MH-47E Special Operations Aircraft, MH-60K Special Operations Aircraft, OH-58D Kiowa Warrior, H-1 Helicopter Upgrades, CH-60 Helicopter, SH-60R Multi-Mission Helicopter Program, Chinook CH-47 Upgrade, C-130J cargo aircraft, Joint Strike Fighter (JSF), RAH-66 Comanche, V-22 Osprey Joint Vertical Aircraft, DD-21 Land Attack Destroyer, CV(X) Next Generation Aircraft Carrier, NSSN New Attack Submarine, SSN 21 Seawolf Class Submarine, DDG-51 Arleigh Burke Class Submarine, Surface Combatant 21, Auxiliary Dry Cargo Carrier (ADC/X), and LPD 17 Amphibious Transport Dock. Providing oversight on the lethality LFT&E of: ATACMS Block 1A (APAM) Army Tactical Missile System (ATACMS) Block II (BAT), FOTT Follow-On To Tow, Javelin-AMCW, JASSM Joint Air-to- Surface Stand-off Missile, Joint Stand-Off Weapon (JSOW) (BLU-97, BLU-108, and Unitary), Line-of-Sight Anti-Tank (LOSAT), Multiple Launch Rocket System—Extended Range (MLRS-ER), Enhanced Fibre-Optic Guided Missile (EFOG-M), M993 and M995 Armor Piercing Cartridge, OCSW Objective Crew Served Weapon, OICW Objective Individual Combat Weapon, SADARM Sense and Destroy Armor, SFW Sensor Fuzed Weapon, SLAM-ER Stand-off Land Attack Missile-Expanded Response, Standard Missile Block IVA, National Missile Defense, Tomahawk Block IV, WAM Wide Area Munition, AMRAAM Advanced Medium Range Air to Air Missile, AIM-9X Sidewinder, ESSM Evolved Sea Sparrow Missile, RAM Rolling Airframe Missile, LHT Light Weight Hybrid Torpedo, TBMD Navy Area Tactical Ballistic Missile Defense System, PAC-3 Patriot Advanced Capability, and THAAD Theater High Altitude Area Defense

Review and Monitor Joint Live Fire Programs: Continued oversight of Joint Live Fire (JLF) test programs: Armor/Anti-Armor and Aircraft. Analysis of data collected in FY 1997 continues. Specifically, the testing on the static versus dynamic testing methodology to determine the vulnerability of AH-1S helicopter engines and transmissions to (1) assess their vulnerability when under load, (2) assess the adequacy of the test procedures followed for evaluating helicopter vulnerability and (3) assess the adequacy of damage models to predict the vulnerability of helicopter components and resulting probability of kills and (4) assess the difference between full-up and component-level testing and (5) conducted battle damage assessment and repair (BDAR) exercises for actual ballistic impacts into operational aircraft. Started testing SPIRIT (code name) and land combat system versus ballistic threats; testing will continue and is expected to be completed in FY 1998. The JLF program started planning a series of ballistic tests (using U.S. munitions) on SCUD B missiles in FY 1997; this effort is expected to continue with actual testing being started later in FY 1998 or early FY 1999.

Crew Casualty Assessment: The project was continued: "Transition of a Combined Toxic Gas Lethality Model to an Injury Model."

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Continued participation in the development of new facilities to explore new technologies such as HPM and directed-energy weapons (DEW). Monitored and participated in an ongoing effort to conduct a strategic warhead vulnerability exploitation to gain insights into defeat of strategic missiles in flight. These efforts are restricted to the LFT&E aspects of these technologies, rather than the development of the technology. Many of these programs are jointly funded in concert with the military services' in-house funded efforts. This ensures adequate linkage between the Office of the Secretary of Defense (OSD) and the technical communities such as the Joint Technical Coordinating Group/Munitions Effectiveness (JTCG/ME), the Joint Technical Coordinating Group/Aircraft Survivability (JTCT/AS), the Survivability Vulnerability Information Analysis Center (SURVIAC), and the Joint Live Fire test agencies.

Assuring Modeling & Simulation Adequacy: Initiated a study of modeling techniques available to support the development of first principles modeling to support live fire testing.

Live Fire Test and Training: Monitored progress of five FY 1997-funded projects and evaluating proposed FY 1998 projects for possible funding. Development of an LFT&T management plan is underway.

(U) FY 1998 Plans:

Review and Monitor Major T&E Programs: Complete LFT&E technical assessments for those systems approaching due dates for LFT&E reporting to Congress such as ATACMS Block 1A (APAM), JSOW/BLU-97, M993 and M995 Armor Piercing Cartridge, SLAM-ER Stand-off Land Attack Missile-Expanded Response, WAM Wide Area Munition, B-2 Spirit, MH-47E Special Operations Aircraft, MH-60K Special Operations Aircraft, RAM Rolling Airframe Missile, and SH-60B LAMPS. Oversight of continuing efforts in FY 1998 include the Advanced Amphibious Assault Vehicle, Command and Control Vehicle, Crusader Advanced Field Artillery System, Grizzly Breacher, Light Tactical Vehicle, M1A2-FY2000 Abrams Upgrade, M2A3 Bradley Fighting Vehicle System, Wolverine, AH-1W Upgrade, UH-1N Upgrade, B-1B Lancer, F-22 Air Superiority Fighter, F/A-18E/F Hornet, JSF Joint Strike Fighter, OH-58D Kiowa Warrior, RAH-66 Comanche, V-22 Osprey, DD21 Land Attack Destroyer, CVX Next Generation Aircraft Carrier, NSSN New Attack Submarine, SSN 21 Seawolf Class Submarine, DDG51 Arleigh Burke Class Submarine, LPD 17 Amphibious Transport Dock, ATACMS Block II (BAT), FOTT Follow-On-To-Tow, Javelin-AMCW, JASSM Joint Air to Surface Stand-off Missile, OCSW Objective Crew Served Weapon, OICW Objective Individual Combat Weapon, SADARM Sense and Destroy Armor, SFW Sensor Fuzed Weapon, AMRAAM Advanced Medium Range Air to Air Missile, AIM-9X Sidewinder, ESSM Evolved Sea Sparrow Missile, LHT Light Weight Hybrid Torpedo, TBMD Navy Area Tactical Ballistic Missile Defense System, PAC-3 Patriot Advanced Capability, THAAD Theater High Altitude Area Defense, ABL Airborne Laser, MEADS Medium Extended Air Defense System, and NMD National Missile Defense System.

Review and Monitor Joint Live Fire Programs: Continue the rotary wing and armor/anti-armor programs initiated and/or continued in FY 1997. Complete testing of the SPIRIT land combat system. Conduct ballistic testing of newly acquired (foreign) large caliber threats against a U.S. main battle tank. Initiate testing of SCUD-B missiles. In early FY 1998, the Army and DOT&E agreed to include part of the Army's LFT&E of the CH-47D ICH (Chinook) program in the near-to-mid term planning for JLF. Notable: Restart fixed-wing aircraft testing canceled in FY 1997 to support Operational Field Assessments. Activities for FY 1998 will include testing of F-14's for fuel explosions, testing of F-16s for vulnerability to man-portable air defense systems (MANPADS), and advance planning for live fire testing of F-117 and F-130H components and/or subsystems.

Crew Casualty Assessment: Completion of the four-year project: "Transition of A Combined Toxic Gas Lethality Model to an Injury Model".

Exploring New Technologies/Advanced Concepts and Survivability Initiative: Funding for projects in this category will be canceled to support increased emphasis on modeling and simulation activities.

Assuring Modeling & Simulation Adequacy: Several new initiatives will be undertaken in this support area. Funding will be provided for the Safety and Survivability of Aircraft program to advance the state-of-the art in modeling explosive conditions in airborne fuel tanks and to predict the initiation and propagation of fire phenomenology. Additionally, funding will be provided to undertake two parallel physics-based modeling programs focused on determining damage caused by the impact of hypervelocity vehicles. One program will be worked in conjunction with the Ballistic Missile Defense Office. The other is a parallel technical effort with the Institute of Defense Analyses to expand the knowledge base for this type of modeling.

Live Fire Testing and Training (LFT&T): Start three new projects as well as continue the five original projects begun in FY 1997. Complete development of LFT&TI management plan. Commence solicitation, evaluation and selection process to identify appropriate FY 1999 projects.

(U) FY 1999 Plans:

Review and Monitor Major T&E Programs: Complete LFT&E technical assessments for those systems approaching due dates for LFT&E reporting to Congress such as ATACMS Block 1A (APAM), JSOW/BLU-97, M993 and M995 Armor Piercing Cartridge, SLAM-ER Stand-off Land Attack Missile-Expanded Response, WAM Wide Area Munition, B-1B Lancer, MH-47E Special Operations Aircraft, MH-60K Special Operations Aircraft, RAM Rolling Airframe Missile, DDG 51 Guided Missile Destroyer, and Search and Destroy Armor (SADARM). Oversight of continuing efforts in FY 1998 include the Advanced Amphibious Assault Vehicle, Command and Control Vehicle, Crusader Advanced Field Artillery System, Grizzly Breacher, Light Tactical Vehicle, M1A2-FY2000 Abrams Upgrade, M2A3 Bradley Fighting Vehicle System, Wolverine Assault Bridge, AH-1W Helicopter Upgrade, UH-1N Helicopter Upgrade, B-2 Spirit, F-22 Air Superiority Fighter, F/A-18E/F Hornet, JSF Joint Strike Fighter, OH-58D Kiowa Warrior, RAH-66 Comanche, V-22 Osprey, DD21 Land Attack Destroyer, CV(X) Next Generation Aircraft Carrier, NSSN New Attack Submarine, SSN 21 Seawolf Class Submarine, LPD 17 Amphibious Transport Dock, ATACMS Block II (BAT), FOTT Follow-On To Tow, Javelin-AMCW, JASSM Joint Air to Surface Stand-off Missile, OCSW Objective Crew Served Weapon, OICW Objective Individual Combat Weapon, SFW Sensor Fuzed Weapon, AMRAAM Advanced Medium Air-to-Air Missile, AIM-9X Sidewinder, ESSM Evolved Sea Sparrow Missile, LHT Light Weight Hybrid Torpedo, TBMD Navy Area Tactical Ballistic Missile Defense System, PAC-3 Patriot Advanced Capability, THAAD Theater High Altitude Area Defense, ABL Airborne Laser, MEADS Medium Extended Air Defense System, and NMD National Missile Defense System.

Review and Monitor Joint Live Fire Programs: Conduct tests of fielded systems not previously tested under Air, Land and Sea Joint Live Fire (JLF) programs. This fiscal year should see the completion of the fourth phase of testing for helicopters and initiate tests of foreign system acquired for exploitation. CH-47D rotor blade tests will start in FY 1999. Testing of F-14 aircraft tests will continue, and F-117 and C-130H component and/or subsystem tests are expected to begin.

Crew Casualty Assessment: No new projects will be started in this area because of higher priority emphasis on modeling and simulation.

Exploring New Technologies/Advanced Concepts and Survivability Initiative: No new projects will be started in this in area because of higher priority emphasis on modeling and simulation.

Assuring Modeling & Simulation Adequacy: Increased emphasis will continue in the area of physics based modeling. Some work on empirical models will continue, as required.

B. Program Change Summary

	FY1997	FY1998	FY1999	Total Program
Previous President's Budget	12.782	10.197	10.231	NA
Appropriated Value	12.782	14.197	10.231	NA
Adjustments to Appropriated Value				
a. FY1999-2003 DoD Fiscal Guidance			-.218	
b. Congressional Actions,				
(1) FFRDC Reduction (Sect. 8035)		-167		
(2) 1.5% Reduction (Sect. 8043)		-213		
(3) RDT&E Reduction (Sect. 8048)		-177		
c. Reduction in Nonpay Purchases Inflation			-79	
Current Budget Submit	12.782	13.640	9.934	NA

C. Other Program Funding Summary

DOT&E is responsible for policy and procedures for all aspects of operational test and evaluation (OT&E) conducted within the Department of Defense. The authorization legislation which established DOT&E specifically requires that DOT&E: provide guidance on all OT&E within DoD; report on the adequacy of OT&E resources; approve plans for, monitor, and analyze the results of OT&E conducted for each Major Defense Acquisition Program (MDAP); coordinate operational testing conducted jointly by more than one DoD component; and coordinate joint OT&E programs. Funding for these responsibilities is under Program Element 0605118D8Z, Director of Operational Test and Evaluation, and is as follows:

	Cost (in Millions)						
	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003
Total Program Element Cost	11.437	16.154	15.311	15.182	14.897	15.128	15.324

D. Schedule Profile

Fiscal Year actual and planned events by quarter

	FY1996				FY1997				FY1998				FY1999			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Contract Milestones:	(See activities under Part A above.)															