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<b>RDT&amp;E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)</b>								<b>DATE</b> February 2000	
<b>APPROPRIATION/BUDGET ACTIVITY</b> RDT&E, Defense Wide/BA 3							<b>R-1 ITEM NOMENCLATURE</b> Combating Terrorism Technology Support <b>PE 0603122D8Z</b>		
<i>COST(In Millions)</i>	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	36.349	55.449	41.307	42.004	41.737	41.805	42.749	Continuing	Continuing
Counterterror Technical Support (CTTS)/P484	31.381	46.485	41.307	42.004	41.737	41.805	42.749	Continuing	Continuing
Special Operations/Low Intensity Conflict (SO/LIC)/P205	1.215	1.309	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Explosive Ordnance Disposal/Low Intensity Conflict/P206	3.753	7.655	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) **A. Mission Description and Budget Item Justification**

(U) **BRIEF DESCRIPTION OF ELEMENT**

(U) Beginning in FY2001 PE 0603122D8Z will be realigned. PE 0603122D8Z, which will be renamed Combating Terrorism Technology Support will be comprised only of P484. P205 and P206 will be moved to PE 0603121D8Z, Alternative to Land Mines, which will be renamed SO/LIC Advanced Development.

(U) P484, Counterterror Technical Support (CTTS). This program develops technology and prototype equipment that address needs and requirements that have direct operational application in the national effort to combat terrorism. It integrates Defense advanced development efforts with government-wide and international efforts to combat terrorism. Projects support antiterrorism, counterterrorism, and consequence management activities to: conduct tactical operations; protect military forces, civilian personnel, installations, infrastructure elements and the general populace from terrorist attack; detect, neutralize, and mitigate the effects of conventional and unconventional devices; conduct surveillance and tracking of terrorists; conduct threat and incident assessments; and process and disseminate information. The Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict oversees and is responsible for execution of the CTTS Program which addresses combating terrorism requirements identified by the interagency Technical Support Working Group (TSWG). The TSWG is a multi-agency R&D working group under the aegis of the Interagency Working Group on Counterterrorism. As such, the CTTS program supports, and is integrated into, the national interagency response to terrorism.

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(U) All projects are distributed among eight mission categories: Chemical, Biological, Radiological, and Nuclear Countermeasures; Explosives Detection and Defeat; Infrastructure Protection; Investigative Support and Forensics; Personnel Protection; Physical Security; Surveillance, Collection, and Operations Support; and Tactical Operations Support. This program is a non-system advanced technology development effort used to demonstrate the utility or cost reduction potential of technology when applied to different types of Defense equipment or techniques. It includes technology development and proof-of-principle demonstrations in field applications for new and improved systems. Coordination and planning efforts with the participating agencies facilitate technology transition from development to operational use. The demonstrations strive to evaluate and assess technologies in a realistic operating environment.

(U) P206, Explosive Ordnance Disposal/Low-Intensity Conflict (EOD/LIC). The EOD/LIC project is a rapid prototyping effort to provide technology and equipment to military operators who are confronted with explosive threats. Tasks focus on detection, countermeasures, and neutralization of explosive threats. Requirements submitted by the Joint Service EOD community and other LIC-oriented military users are prioritized by the OSD EOD/LIC Coordination Group.

(U) P205, Special Operations/Low-Intensity Conflict (SO/LIC) Analytical Support. The SO/LIC Analytical Support project provides specialized research and analytical support for the Assistant Secretary of Defense for Special Operations and Low- Intensity Conflict [ASD (SO/LIC)]. Projects address a broad spectrum of technical, acquisition, and policy issues relating to special operations, counter- and anti-terrorism, peacekeeping, psychological operations, counterinsurgency, unconventional warfare, and contingency operations. The project supports and is integrated into overall DoD efforts to develop options for dealing effectively with a wide range of military responsibilities in military operations other than war. This project provides a vehicle to initiate analysis required to support acquisition documentation and conceptual policy issues regarding roles and missions of SOF in the changing world environment. Analysis may also be used to improve OASD(SO/LIC)'s congressionally mandated oversight function of special operations and low-intensity conflict.

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Total Program Element (PE) Cost	36.349	55.449	41.307	42.004	41.737	41.805	42.749	Continuing	Continuing
Counterterror Technical Support (CTTS)/P484	31.381	46.485	41.307	42.004	41.737	41.805	42.749	Continuing	Continuing

(U) **Project Number and Title: P484 Counterterror Technical Support (CTTS)**

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS**

(U) **FY1999 Accomplishments:**

**CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES.** Completed a field nuclear material identification system; modification of an ion mobility spectroscopy chemical agent detector with reduced false alarm rate; formulation and testing of a non-hazardous decontamination system for chemical and biological agents; and the development of an over pack bag for devices containing chemical and biological agents. (\$ 5.017 Million)

(U) **EXPLOSIVES DETECTION & DEFEAT.** Completed technology transition of the 90-mm water canon to industry; commercialization of the Universal Training Device; the development of a safer initiating system for various explosive disruption robots; development of an interactive computer-based improvised explosive device neutralization training system; development of the ARTS robotic platform to include on-board diagnostics and access tools for Explosive Ordnance Disposal (EOD) operations; modeling of non-ideal, terrorist explosives, and the development of a database for identification of large vehicle bomb threats, disruption tools and procedures. (\$ 4.703 Million)

(U) **INFRASTRUCTURE PROTECTION.** Completed development of a common encryption standard for use by the “commodity transport” infrastructure systems (i.e., natural gas, petroleum, electricity, etc.) on their Supervisory Control and Data Acquisition (SCADA) systems and Remote Terminal Units (RTUs). (\$ 0.752 Million)

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- (U) **INVESTIGATIVE SUPPORT & FORENSICS.** Completed the development of fingerprint development systems (to detect and recover fingerprints on water soaked surfaces and to develop fingerprints from large objects using cyanoacrylate vapor); a document tagging system; an enhanced post-blast analytical tool for vehicle bombs (CarBombCAD); and a forensic expert and investigative system for aircraft mishaps in which MANPADS are the suspected cause. (\$ 1.539 Million)
- (U) **PERSONNEL PROTECTION.** Completed development of stab and slash resistant body armor and certification of an advanced personnel body armor system. (\$ 0.844 Million)
- (U) **PHYSICAL SECURITY.** Completed Personal Injury Study of the Khobar Towers bombing and identified techniques that will reduce personnel injuries from blast effects; identification and test of retrofits for specific facility upgrades to support the European Command; and standardized bomb threat evaluation cards for dissemination to military forces. (\$ 12.531 Million)
- (U) **SURVEILLANCE, COLLECTIONS, & OPERATIONS SUPPORT.** Completed development of a long-range observation system. (4.128 Million)
- (U) **TACTICAL OPERATIONS SUPPORT.** Completed advanced low-halo night vision goggles; high-speed personnel delivery boat; specialized access tool for installing anchors in steel and concrete; and development of a hand-held radiation detector. (\$ 1.867 Million)
- (U) **FY2000 Plans:**
- (U) **CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES.** Complete development of a disposable chemical and biological protective clothing system; protocols for the rapid detection of biological agents and toxins in food; testing of chemical filters for building ventilation protection; biological agent characteristics databases for human and agricultural bioterrorism pathogens; and a palmtop first responder chemical hazard planning tool. Continue development of technology and prototypes to support countermeasures against terrorist use of CBRN threats in urban environments, chemical and biological detection, identification, mitigation, and decontamination methods. Continue to develop personnel protective equipment with special emphasis on ease of use and low-cost. (\$ 2.928 Million)
- (U) **EXPLOSIVES DETECTION & DEFEAT.** Complete development of the flat-panel imager for a digital x-ray system; a canine based, remote collection explosives screening system for large vehicle bombs (LVBs); a single-sided neutron interrogation unit for the detection of vehicle bombs; an IED standard operating procedures database; an x-ray database for identification of improved improvised explosive device (IED) components; dilute explosive tile technology for LVB countermeasures; and a low cost remote-firing device. Continue development of equipment to

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assist explosive ordnance disposal (EOD) personnel in the areas of LVB countermeasures; IED detection, diagnostic, and render safe tools; and EOD training systems. Continue development of explosive detection capabilities using canines; quantum resonance and other bulk and trace explosive detection methods; and marking agents. (\$ 5.477 Million)

(U) **INFRASTRUCTURE PROTECTION.** Complete development of an automated infrastructure analysis tool for the electric power grid; a hacker publications, tools, and methodologies database; and a flash ROM (read only memory) vulnerabilities countermeasures tool. Continue development of a radio frequency weapon characterization and effects database; computer/software security and network intrusion detection tools; and water pipeline database. Start development of computer security training aides; experience-based training tools for automated information system (AIS) administrators; common viewer and data reduction tools for intrusion detection systems; infrastructure scale, vulnerability, and interdependency analysis tools; electronic watermarks and file beacons; and database for signatures and contents of known commercial-off-the-shelf programs and software. (\$ 2.625 Million)

(U) **INVESTIGATIVE SUPPORT & FORENSICS.** Continue development of DNA recovery and analysis tools; evidence source determination tools; fingerprint recovery and analysis tools; questioned document analysis validation; and tagging, tracking, and locating capabilities to support law enforcement applications. (\$ 4.036 Million)

(U) **PERSONNEL PROTECTION.** Complete evaluation of advanced transparent armor material; an advanced model for predicting of explosives effects on vehicles and occupants; evaluation of tungsten carbide armor piercing projectiles; development of an advanced transparent portable shield; and laser threat and projectile threat databases. Continue development of enhanced protective measures for fully armored vehicles; transparent armor; improved personnel body armor; counter sniper systems; and laser effects analysis. (\$ 3.437 Million)

(U) **PHYSICAL SECURITY.** Complete the development of ultra-wide band radar, short-range intrusion detection sensor. Continue development of blast mitigation techniques for use in pre and post-construction settings; entry point screening capabilities; automated vulnerability assessment tools; and advanced intruder detection sensors. (\$ 18.178 Million)

(U) **SURVEILLANCE, COLLECTIONS, & OPERATIONS SUPPORT.** Continue development of specialized equipment for intelligence collection; search and recognition systems for terrorist individuals and groups; and tagging, tracking, and locating capabilities to support the intelligence community. (\$ 6.375 Million)

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(U) **TACTICAL OPERATIONS SUPPORT.** Complete advanced chemical agent detector; miniature laser range finder; and tactical nuclear material identification system. Continue development of improved night vision systems; nuclear and chemical detectors; advanced personnel navigation systems; and tactical communication systems. (\$ 3.430 Million)

(U) **FY2001 Plans:**

(U)**TACTICAL OPERATIONS SUPPORT.** Complete development of an advanced personal navigation system; analysis to support development of advanced chemical agent detectors; transition of low halo night vision goggles; development of an advanced high data rate tactical communications system; and development of a low probability of intercept interior communications system. Continue development of improved night vision systems; nuclear and chemical detectors; and tactical communication systems.  
(\$ 3.048 Million)

(U) **EXPLOSIVES DETECTION & DEFEAT.** Complete development of a single-sided NQR antenna; software codes for integrating robotic chassis and tools; a field-portable one-sided x-ray system; a hand-held IMS explosives detector; a system for screening personnel and packages; an integrated x-ray/robot; a hardened luggage container; a method for detonation cord marking; and an explosive containment system for airport security. Continue development of equipment to assist explosive ordnance disposal (EOD) personnel in the areas of large vehicle bomb countermeasures; improved improvised explosive device detection, diagnostic, and render safe tools; and EOD training systems. Continue development of explosive detection capabilities using canines; quantum resonance and other bulk and trace explosive detection methods; and marking agents.  
(\$ 4.867 Million)

(U)**CHEMICAL, BIOLOGICAL, RADIOLOGICAL, AND NUCLEAR COUNTERMEASURES.** Complete development of a personal chemical agent sampler; training aids for canine nerve agent detection; protocols for assessing building vulnerabilities to a chemical/biological attack; and validation of mass decontamination protocols. Continue development of technology and prototypes to support countermeasures against terrorist use of CBRN threats in urban environments; and chemical and biological detection, identification, mitigation, and decontamination methods. Continue development of personnel protective equipment with special emphasis on ease of use and low-cost.  
(\$ 2.601 Million)

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(U)**PERSONNEL PROTECTION.** Complete development of a counter sniper system to intercept bullets; advanced composite vehicle armor; design and evaluation of the next generation fully armored limousine; and development of advanced personnel protection for FAVs. Continue development of enhanced protective measures for fully armored vehicles; transparent armor; improved personnel body armor; counter sniper systems; and laser effects analysis.  
(\$ 3.054 Million)

(U) **SURVEILLANCE, COLLECTION & OPERATIONS SUPPORT.** Complete development of a hand-held RF detection system and a quick erect, wireless transmission system for full-motion video. Continue development of specialized equipment for intelligence collection; search and recognition systems for terrorist individuals and groups; and tagging, tracking, and locating capabilities to support the intelligence community.  
(\$ 5.665 Million)

(U) **PHYSICAL SECURITY.** Complete development of security engineering manuals for baseline antiterrorism/force protection military construction standards; a modular, open architecture system to provide intelligent vulnerability assessment, consequence and risk management tools; video-based systems to provide perimeter intrusion detection with low-probability of false alarm and early warning of large vehicle bomb characteristics; a man-portable, motion-activated electronic trip flare; and an integrated high-volume air sampler and explosive trace detection system for the inspection of cargo containers. Continue developing blast mitigation techniques for use in pre and post-construction settings; entry point screening capabilities; automated vulnerability assessment tools; and advanced intruder detection sensors.  
(\$ 16.153 Million)

(U)**INFRASTRUCTURE PROTECTION.** Complete development of a water pipeline database; a RF weapon characterization and effects database; electronic watermarks and file beacons; and a database of signatures and contents of known commercial-off-the-shelf programs and software. Continue development of computer/software security and network intrusion detection tools; computer security training aids; experience-based training tools for AIS administrators; common viewer and data reduction tools for intrusion detection systems; and infrastructure scale, vulnerability, and interdependency analysis tools. Start development of systems for automatic indications and warnings of cyber attacks.  
(\$ 2.332 Million)

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(U)**INVESTIGATIVE SUPPORT & FORENSICS.** Complete development of a first responder tool set for emergency response and management; a personal attribute `determination through fingerprints` capability; a cockpit voice recorder analysis system; improved methodologies for trace explosives detection; techniques for the determination of the geographic source/origin of explosives and organic materials (based on stable isotopic ratios); an enhanced handwriting analysis and questioned document examination system; chemical tags for devices and documents; improved audiovisual tape enhancement methods; and latent fingerprint standard references. Continue development of DNA recovery and analysis tools; evidence source determination tools; fingerprint recovery and analysis tools; questioned document analysis validation; and tagging, tracking, and locating capabilities to support law enforcement applications.  
(\$ 3.587 Million)

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Total Program Element (PE) Cost	36.349	55.449	41.307	42.004	41.737	41.805	42.749	Continuing	Continuing
Special Operations/Low Intensity Conflict (SO/LIC)/P205	1.215	1.309	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) **Project Number and Title: P205 Special Operations/Low Intensity Conflict (SO/LIC)**

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS**

(U) **FY1999 Accomplishments:**

(U)Projects included: Non-lethal Weapons Interagency study; Optempo/Perstempo versus Deployment of NSW Forces; SOF Operations in a Sensor Rich Environment; Joint Architecture Requirements for MPARE; Compliance with DoD Information Operations Master Plan; SECDEF Report on the Military's Role in Countering Terrorism; and the Effectiveness of DoD Medical Humanitarian Projects.  
(\$ 1.215 Million)

(U) **FY2000 Plans:**

(U)The FY 2000 projects include: Integrating Information Operations, Psychological Operations, and Public Diplomacy; Joint SOF Requirements and Technologies Analysis; Defense Expenditures on Low-Intensity Conflict Activities; Determine Future Roles and Missions of Special Operations Forces; Preparing for Foreign Urban Counter-Insurgency: Interagency Requirements for Future Urban Counter-Insurgency Operations; Complex Adaptive Systems Modeling for Special Operations.  
(\$ 1.309 Million)

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Total Program Element (PE) Cost	36.349	55.449	41.307	42.004	41.737	41.805	42.749	Continuing	Continuing
Explosive Ordnance Disposal/Low Intensity Conflict/P206	3.753	7.655	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

(U) **Project Number and Title: P206 Explosive Ordnance Disposal/Low Intensity Conflict**

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS**

(U) **FY1999 Accomplishments:**

(U) Completed development of a clandestine underwater transponder. Completed development of EOD ballistic/fragmentation protection. Completed development of special operations forces vehicle ballistic protection. Completed development of non-explosive cartridges. Completed development of a support craft command and control system. Completed development of an integrated mission planning and evaluation system. Completed development of an integrated diver's display mask. Completed development of a small munitions/boobytrap disrupter. Completed evaluation of long range disrupters. Completed evaluation of a miniature mine detector. Completed development of a non-magnetic dive light. (\$ 0.359 Million)

(U) Continued development of a limpet mine detection system. Continued development of a remote field disassembly system. Continued development of an improved underwater demolition charge. Continued development of a limpet mine neutralization tool. Continued development of a hull acoustic navigation system for diver's search. Continued development of an EOD incident site command, control and communications system. Continued development of an advanced EOD tactical information system. (\$ 1.717 Million)

(U) Started development of an HMMWV-based laser ordnance neutralization system. Started development of SOF/EOD tactical decision aids. Started development of an advanced EOD explosive storage system. Started development of RAMS/AFS Interface. Started development of an integrated explosive device training system. Started development of an improved vehicle access/disruption device. Started development of a remote EOD mini-reconnaissance vehicle. Started development of a SOF/EOD personal digital assistant. Started development of a thermite containment system. Started development of Special Operations Craft - Riverine (SOC-R) ballistic protection. Started development of SuperQuick fuze countermeasures. (\$ 1.677 Million)

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**(U)      FY2000 Plans:**

(U)Complete evaluation of a remote field disassembly system. Complete development of a limpet mine detection system. Complete development of an improved underwater demolition charge. Complete development of a limpet mine neutralization tool. Complete development of a hull acoustic navigation system for diver's search. Complete development of an EOD incident site command, control and communications system. Complete development of an advanced EOD tactical information system. Complete development of SuperQuick fuze countermeasures.

(\$ 1.175 Million)

(U)Continue development of an EOD laser ordnance neutralization system. Continue development of SOF/EOD tactical decision aids. Continue development of advanced EOD explosive storage system. Continue development of the RAMS/AFS interface. Continue development of an integrated explosive device training system. Continue development of a vehicle access/disruption device. Continue development of a remote EOD mini-reconnaissance vehicle. Continue development of a SOF/EOD personal digital assistant. Continue development of a thermite containment system. Continue development of SOC-R ballistic protection.

(\$ 3.739 Million)

(U)Start development of an autonomous search/hydrographic system upgrade. Start development of an RF-controlled digital x-ray imaging system. Start development of a single sided x-ray. Start development of x-ray interpreter hardware/software. Start development of an EOD communications headset. Start development of a chemical/biological/nuclear detector for EOD robots. Start development of chemical leak seal. Start development of a magneto-inductive firing device. Start development of a portable blast chamber. Start development of a high-resolution miniature color diver display system. Start development of a hand-held explosive vapor detector. Start development of an incident site mapping and backpack communications capability. Start development of an integrated remotely operated underwater vehicle, with hull navigation and limpet mine detection sonar. Start development of an advanced remote underwater search vehicle system. Start development of a tactical global broadcasting system receiver.

(\$ 2.741 Million)

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(U) <b>B. <u>Program Change Summary</u></b>	<b><u>FY1999</u></b>	<b><u>FY2000</u></b>	<b><u>FY2001</u></b>	<b><u>Total Cost</u></b>
Previous President's Budget	37.667	52.223	54.791	Continuing
Appropriated Value	0.000	57.223	0.000	Continuing
Adjustments to Appropriated Value				
a. Congressionally Directed Undistributed Reduction	0.000	0.000	0.000	
b. Rescission/Below-threshold Reprogramming, Inflation Adjustment	(1.318)	(.666)	(.362)	
c. Other	0.000	(1.108)	(13.122)	
Current President's Budget	36.349	55.449	41.307	Continuing

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**Change Summary Explanation:**

(U) **Funding:** In FY 2000, Congress added \$2.0M for testing of air blast and improvised explosives and \$3.0M for facial recognition. Adjustments are based on congressionally directed reductions, and a government wide rescission. Beginning in FY2001 PE 0603122D8Z will be realigned. PE 0603122D8Z, which will be renamed Combating Terrorism Technology Support will be comprised only of P484. P205 and P206 will be moved to PE 0603121D8Z, Alternative to Land Mines, which will be renamed SO/LIC Advanced Development.

(U) **Schedule:** N/A

(U) **Technical:** N/A

(U) C. **OTHER PROGRAM FUNDING SUMMARY COST:** N/A

(U) D. **ACQUISITION STRATEGY:** N/A

(U) E. **SCHEDULE PROFILE:** N/A

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